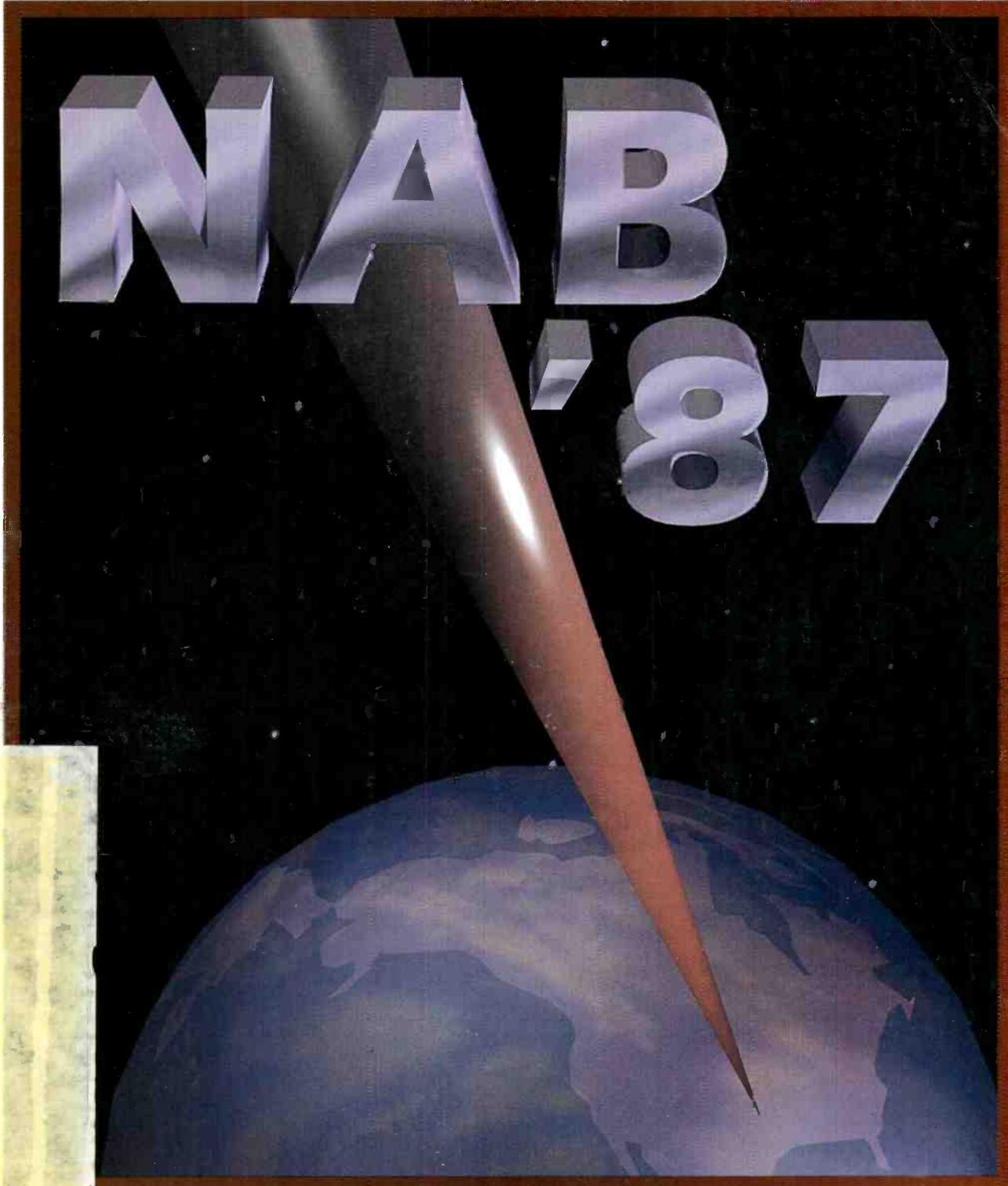


MARCH 1987 \$3.00

BME

BROADCAST MANAGEMENT/ENGINEERING



NAB
'87

In this issue:

- What's Hot: TV/Video; ■ Radio/Audio; ■ RF/Sats, T&M
- Guide to Exhibitors

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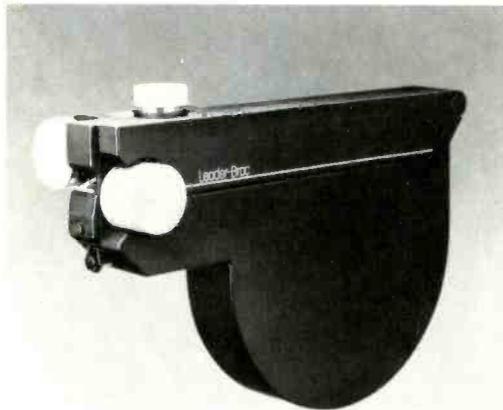
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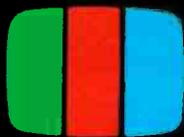
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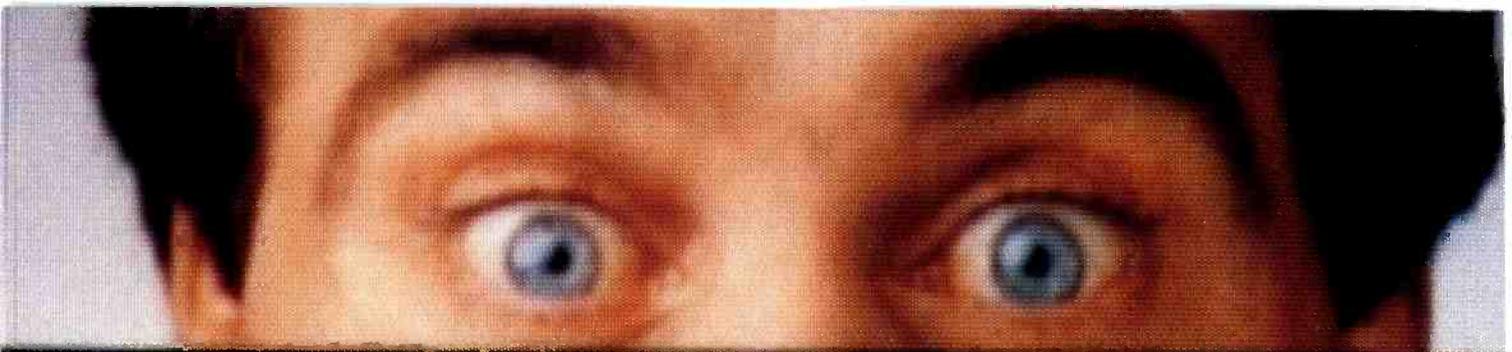
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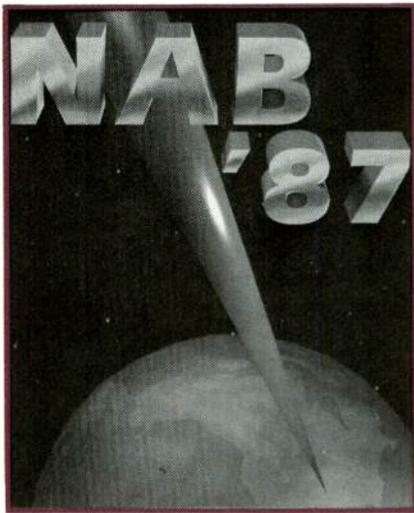
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MARCH 1987 VOLUME 23/NUMBER 3

BME

BROADCAST MANAGEMENT ENGINEERING



Advancements in technology will be seen at outdoor NAB exhibits, as well as indoor. Solid State Logic's SL 6000 E console—with onboard computer and total recall—is seen here inside a unit of NBC's new N8 sports production truck. Displayed at NAB, N8 is outfitted with the very latest equipment, and was designed and built by Centro working with NBC personnel.

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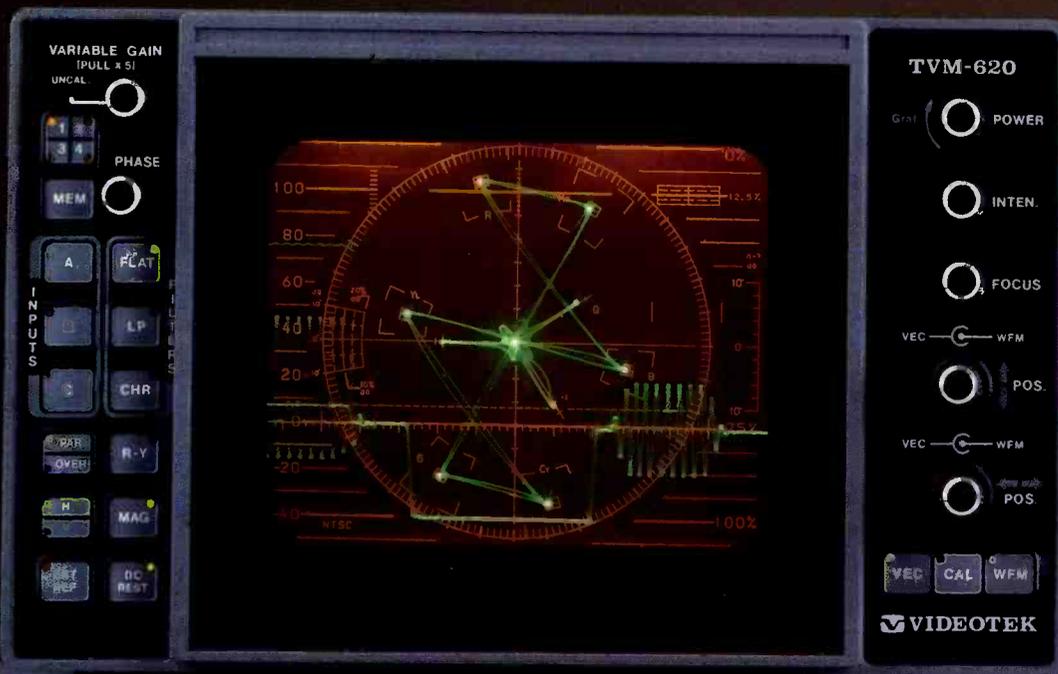
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Cover:

This month's special NAB cover was conceived by our art director Andra Douglas. The image was then produced by Tony Caio at Data Motion Arts in New York using a Picturemaker. Texture source was the Quantel DP7000 paint box, and it was imaged by a Matrix QCR digital camera. Technical support was provided by Jeff Kuhn and Ted Eland, with overall support by NEP Productions.



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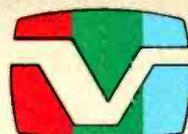
Our new DM-140S demodulator provides 140-channel tuning capability, with balanced or unbalanced MTS stereo or SAP audio outputs and a separate monaural output. Unit comes with volume-adjustable internal speaker, external stereo speakers and tactile membrane control panel.

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Fairness (?) Doctrine

“With the truly incredible impact of the electronic medium of television on American society, broadcasters should not view repeal as just another way of eliminating some expensive litigation.”

For an industry that is not supposed to be regulated, broadcasting spends a tremendous amount of time wrestling with regulating agencies and lawyers. Currently, the RTNDA, its lawyers, and several other elements of the broadcast industry are taking a run at the Fairness Doctrine. The RTNDA opposes the Fairness Doctrine, and, in the words of the organization's president, Ernie Schultz, “We're opposed to it, we think it should be repealed, thrown out. It's supposed to increase discussion on controversial issues, but it has the opposite effect.”

There are two parts to the Fairness Doctrine. One: a station must engage in controversial programming. Two: once done, the station is responsible for balance, for providing opposing viewpoints. The main bone of contention for broadcasters, of course, is that it dictates to them how they can program their own station. Also, news departments feel the rule relegates them to second-class citizenship as compared to print journalists. Print journalists have no such content restrictions, and so broadcasters raise the spectre of First Amendment violations.

Further, some of the damage to broadcast interests is subtle, due to broadcasters not litigating many of the fairness complaints against them because it is easier, cheaper, and better in a public relations sense just to succumb to such pressures by special interest groups. This is the part where open discussion gets hidden, and the doctrine ironically has the opposite effect of its original intention.

For these reasons, I oppose continuation of the Fairness Doctrine. There is one point I would like to bring up in this issue, however. Broadcasters need to realize, first, the tremendous responsibility they have to society and, second, their status as disseminators of information. The argument comparing electronic journalists to print journalists really doesn't wash. The vast majority of the American public gets its news, its entertainment, and, in many ways, its sense of society and the world from television and no other source. No other source. They don't read books, and they have no direct access to politicians or the people in power. These facts automatically make any direct comparison with any other medium ridiculous.

Having said that, I would advise broadcasters to acknowledge this responsibility while opposing the Fairness Doctrine. There are First Amendment considerations here, and that is the basis for my support of the doctrine's repeal. However, with the truly incredible impact the electronic medium of television has on American society, broadcasters should not view its repeal as just another way of eliminating some expensive litigation. Repeal of the doctrine should bring, with the new found freedom, an obligation by broadcasters to police themselves and recognize their unique social responsibilities. There is no law, remember, that says you can't make money and entertain while still doing a service to the public.



Tim Wetmore
Editor

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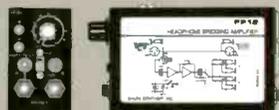


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Thomson-CSF Makes Deal with BTS

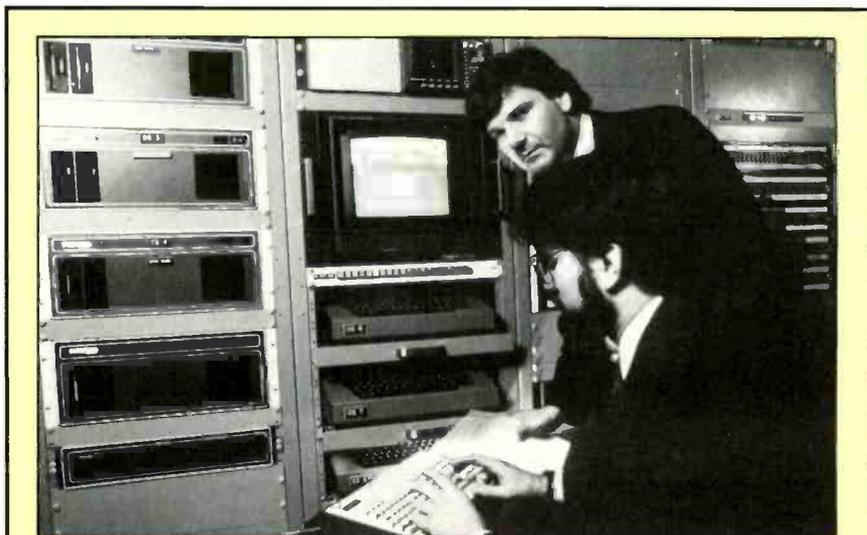
The trend toward retrenchment among broadcast equipment manufacturers witnessed yet another significant business agreement late last month, this time between France's Thomson-CSF and BTS, Broadcast Television Systems. BTS is the joint company of West Germany's Robert Bosch Corporation and the Netherlands' Philips, and was created less than a year ago.

The agreement provides that BTS will take over all of the research, production, marketing, and field-service activities of Thomson-CSF Broadcast, Inc., in the area of video graphics. Thomson Video Equipment will retain marketing rights to its video graphics line outside of the United States.

Industry observers note that by joining forces in BTS, Bosch and Philips have both improved their U.S. operations by merging product lines and eliminating cross-overs. They note that the existence of BTS enables both companies to benefit from the other's respective strengths in different product areas, which is in line with the popularity of systems-oriented broadcast equipment sales. Research and development are pooled as well. BTS employs more than 2,000 people worldwide.

Thomson Video Equipment reports that its agreement with BTS gives it the opportunity to consolidate its line of video production equipment, and that it is part of the company's global broadcast strategy for the United States, which also included the August 1986 takeover of U.S. transmitter manufacturer Comark.

BTS cites a broadened product and customer base, larger sales organization, and improved customer service as results of its buyout of Thomson-CSF Broadcast's graphics generators line. Products included in the deal are the Vidifont graphics and animation system, and the Veditext character and graphics system.



Brooklyn Queens Cable Television, in New York City, has eliminated the need for printed program guides by providing subscribers with four channels of high-quality color graphics of program schedules and highlights, community activities, and other information. To accomplish this, BQ Cable uses seven Quanta Microgen 100 character generators for fixed message display and 12 Quantafont 500s for automated graphics/titling and distribution. The system is seen here being operated by John Missale, director of video engineering and broadcast operations, and Jesse Spilka (seated), engineer/master control technician.

"This represents our only opportunity to create an on-air identity for BQ Cable," says Missale, "and that's why the Quanta graphics/titling system is so important to us." Missale notes that the system takes full advantage of color, multiple font sizes and styles, custom logos, and the ability to digitize artwork and graphics.

Graphics and data input is accomplished off-line on the system, which has a 500-page memory. Then the information is downloaded on dedicated phone lines automatically, via Quanta's RS-232C interface, to five slave character generators in Brooklyn. BQ Cable currently serves 25,000 subscribers, and is a division of Warner Communications.

Winter SMPTE Looks Ahead

While temperatures in San Francisco hit record highs on February 6 and 7, cable cars rattled by outside the Westin St. Francis Hotel and inside the Society of Motion Picture and Television Engineers (SMPTE) held its 21st Annual Television Conference.

Titled "The 21st Conference Looks to the 21st Century," the event focused on advanced television technology, with video graphics, new tape-recording formats, and global television research being the major themes covered. The well-attended conference included

a technical papers program, an exhibit by 24 product manufacturers, and meetings of SMPTE engineering, executive, and advisory committees.

"A first for this year's conference is having our technical program on one day, and then holding a powerhouse meeting the next for the world's leading TV research labs to address us about technology from a futurist point of view," commented M. Carlos Kennedy, SMPTE president. "Exhibits demonstrating some of the technology discussed are also a new thing," he added.

Experts presenting papers

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It's the world's first hi-performance, truly portable Ku-band satellite uplink. Each of the 13 A.T.A. approved cases weighs less than 100 pounds, and the complete system conforms to international baggage regulations. Checked as excess baggage, the S-1 arrives when you arrive. Economically.

The system utilizes a Vertex 1.8M offset-fed antenna with a transmit gain of 46.6 dbi. This precision, aluminum surfaced reflector antenna meets the 29-25 log Θ FCC 2° spacing curves.

Two STS phase combined power amplifiers provide fail-safe redundancy and plenty of reserve power. And an Intelsat-approved exciter

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Video and audio control and monitoring equipment are included in the standard S-1 package. Options include a 2-way communications channel, and an international receive configuration is available. The S-1 is also easily adaptable for data transmission. Contact Midwest for complete information.

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See Midwest at Indoor Booth #3210
and at Outside Booth #10.

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MIDWEST

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represented six different countries, including executives from American commercial networks and PBS. "Television in the twenty-first century will offer services and quality as different from today as the introduction of color in the Fifties was from the days of John Logie Baird," predicted Joe Flaherty, vice president and general manager of the CBS engineering and development department.

Flaherty was joined by Michael

Sherlock, NBC president of operations and technical services, in calling for standardization of future videotape formats. Both cited a need for a half-inch digital component format for ENG. Other important trends cited by the experts included CCD cameras, HDTV, and the continued evolution of video graphics and effects.

RCA Think Tank to SRI

General Electric has announced

that RCA's 45-year-old David Sarnoff Research Center, in Princeton, NJ, will be donated to SRI International, in Menlo Park, CA. Television technology research is one of a large number of areas that SRI, originally affiliated with Stanford University, has been involved in during its 40-year history.

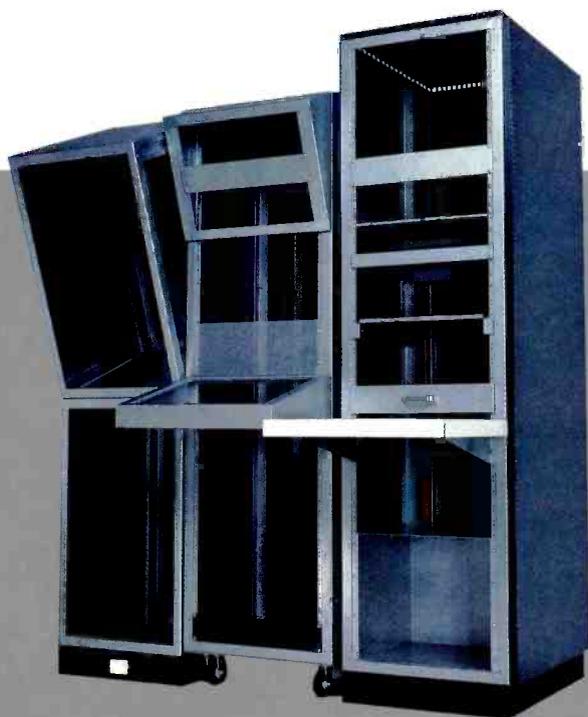
"GE couldn't support two separate corporate research centers, so the solution was to donate the Sarnoff Center to SRI," explained Jon K. Clemens, of RCA Laboratories. GE operates its own corporate research center in Schenectady, NY.

It has been reported that SRI will attempt to reshape the Sarnoff Center in its own non-profit mold, turning the former private lab into a research organization selling contract services to multiple clients. "GE will fund \$250 million in contract money over the next five years," said Clemens. "We'll be learning how to market our research now. There is no contemplated moving of the Sarnoff Center at this time, although its staff will have to be reduced by roughly 25 percent."

The Sarnoff Center, named after the seminal broadcast figure and former RCA chief, built its reputation on pioneering research into color television, liquid-crystal displays, and CMOS computer chip technology.

Newsmakers Promo News Program

An innovative series of print and TV ads currently features newsmakers—and not news reporters—promoting Los Angeles KABC-TV's Eyewitness News program. The commercials were created by Davis, Johnson, Mogul & Colombatto (DJMC), and include such notables as South African Archbishop Desmond Tutu, labor leader Cesar Chavez, Rev. Jesse Jackson, and heart surgeon Dr. Robert Jarvik. The TV versions of the ads—30-second spots—will run throughout this year. The first in the series began airing in late December and spotlights Chavez.



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redundancy are optional, as are several baseband equipment packages.

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See Midwest at Indoor Booth #3210
and at Outside Booth #10.



MIDWEST
Communications Corp.

One Sperti Drive
Edgewood, KY 41017
606-331-8990

Circle 111 on Reader Service Card

"We were challenged by KABC to come up with a 'larger-than-life' campaign," said DJMC president Brad Ball. "What our creative team came up with was to ask people who have changed the world to express their visions of a better world. And what makes this concept work is that these are people who are making news happen every day."

DJMC's creative team of Blaine Lifton and Bill Harper were sub-

sequently dubbed the "guerilla production team" in recognition of their ability to work around their subjects' busy schedules as well as budgetary and time restrictions. The spots were shot by the news production team of Glenn and Karen Winters with award-winning cinematographer Allen Daviau serving as visual consultant.

The commercials, which run largely unedited and unscripted, feature a uniform format with a

25-second personal statement from each subject. The person's image then dissolves into a photo of the earth and the tag line: "Eyewitness News. We'll show you what the world is. Imagine what it could be."

As compensation for the ads, each spokesman was given a \$1,000 honorarium to donate to the charity or cause of his choice.

WOR Radio Turns 65

Superman, the Green Hornet, and the Lone Ranger will return to the ether once again in an "Old-Time Radio Festival" (March 14 and 15) on WOR 710 AM, in New York. The broadcast of the vintage WOR-Mutual radio dramas, produced during the thirties and forties at the WOR studios, is just one of many special programs the station is presenting as part of its 65th anniversary.

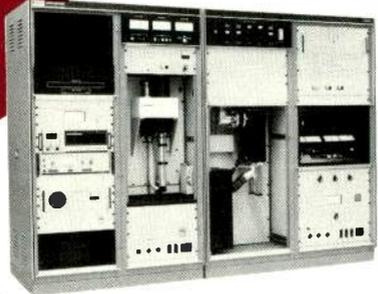
The celebration began on the week of January 11, and culminates 65 days later in a grand finale \$65,000 cash prize giveaway on the highly popular *Rambling With Gambling* morning program.

"Attaining this milestone is significant not only for WOR but for the broadcast industry in general," explains Lee S. Simonson, vice president and general manager. "In an industry where change is the norm and consistency the exception WOR radio is the only New York station that retains its original call letters and program format while maintaining a leadership position."

Founded in 1922 by a department-store chain interested in encouraging the sale of wireless sets, WOR credits itself with being the first station to employ a 50 KW transmitter and directional antenna (1935), the first New York station with flying traffic reports, and the creator of the industry standard of the live radio seven-second delay.

New York's top-rated AM station, WOR is also the most listened-to talk station in the U.S., according to a recent *James R. Duncan Report*. WOR Radio is an RKO Radio station, which is a division of Gencorp.

30 kW



UHF Television Transmitter

The two best reasons to buy a Freedom Line transmitter:

Putting you on the air...
Keeping you there

These are Acrodyne's top priorities, not to mention:

- Most efficient 30 kW UHF design
- Single THOMSON tetrode final amplifier
- Available with MARCONI B-7500 exciter
- Extensive built-in diagnostics
- External high voltage power supply
- Stereo ready
- Hybrid combined for 60 kW output
- Cost effective
- Ideal for primary or standby service

All this plus turnkey installation, a field engineering staff and 24-hour parts support. Write or call for information on our 30 kW UHF TV transmitters or any of our Freedom Line products.

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ACRODYNE

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215/542-7000 800/523-2596
Telex: 846358

Cross-Country Communication



With the antenna
that works!
In Brownsville,
In Seattle,
In Miami,
Everywhere!

Midwest combines its mobile production unit experience with the latest antenna technology to bring you the S-23, a mobile satellite communications system that enables you to uplink a story from virtually anywhere

The S-23 incorporates a Vertex 2.6M antenna with 50db gain into a unit that is spacious enough for full production capability, yet has excellent weight distribution and a wide GVW safety margin.

An integral deployment and positioning system ensures antenna accuracy, even in heavy weather. You

can choose from a variety of equipment configurations and several domestic and foreign chassis models.

Call for specifications and antenna patterns on the S-23, S-18, S-1 Fly-away or any of our mobile satellite communications systems.

The Midwest S-23. The mobile satellite communications system that works. Everywhere.

- 2.6M Vertex Antenna
- >50db Gain at 14.25 GHz
- >35db Cross Polar Isolation
- Meets 29-25 log θ FCC 2° Spacing Curves

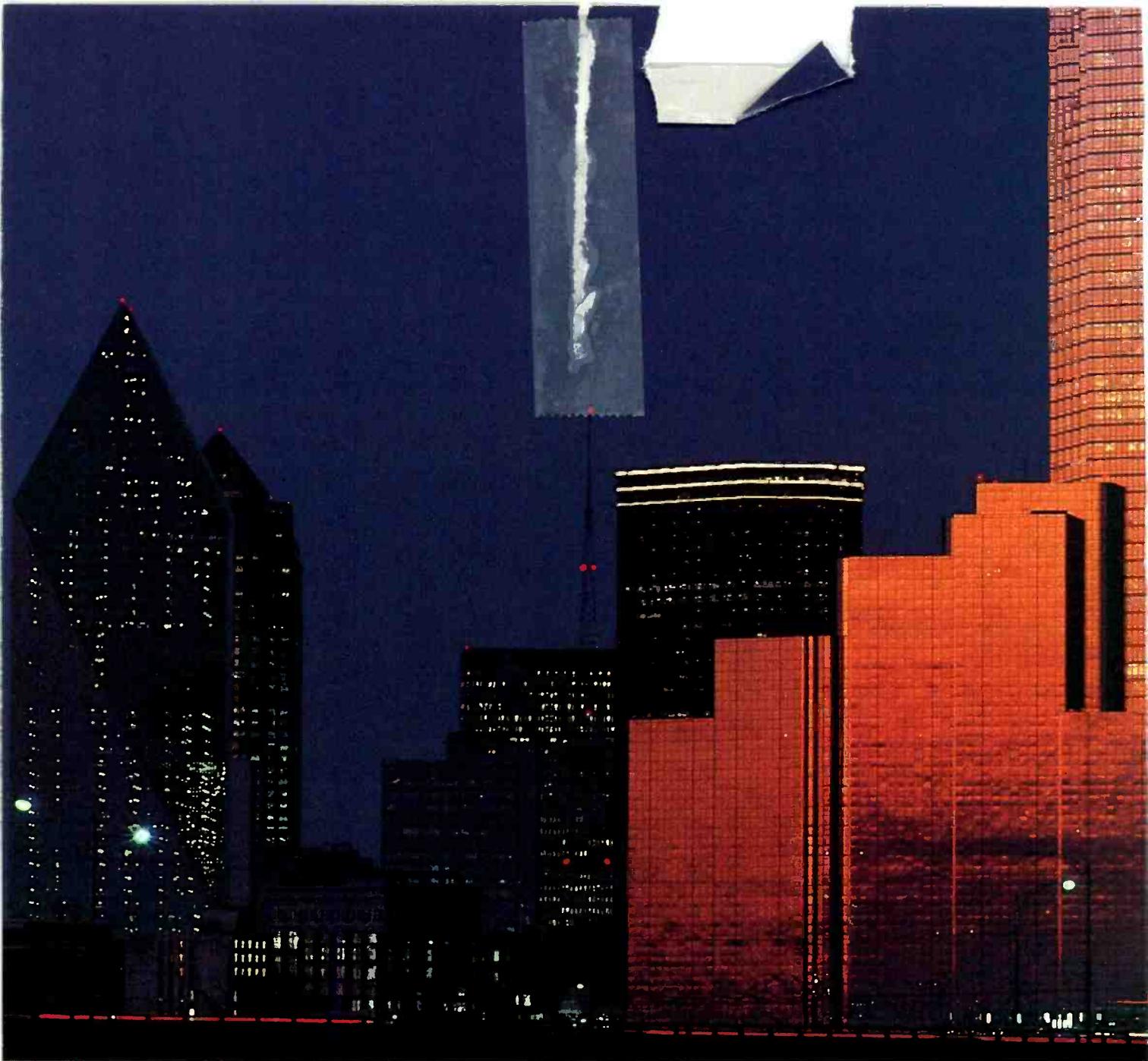


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MIDWEST
Communications Corp.

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Edgewood, KY 41017
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Circle 113 on Reader Service Card



NAB Dallas: BTS shows studio and portable cameras, Beta SP, Beta and B format tape recorders, monitors, automation, film to tape transfer and signal

How is it that a completely new company offers the most complete range of television production equipment available? Well, BTS is not just any new company. BTS is a joint subsidiary of Bosch and Philips. That's why in every BTS product you'll find the total experience of two television pioneers that have continually set milestones in TV production for the last 50 years.

With the new organization, Customer Support and Service will be even more effective. Single source equipment means

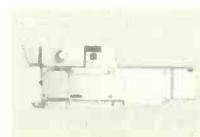
single source responsibility – good news if you already work with Bosch and Philips equipment. As a leader worldwide in systems, we feel responsible not only for our products but for their further development. Therefore we're showing you a few innovations in Dallas that will make television history. For example, the new CCD camera LDK 90, the first joint development with the BTS name. Come to Dallas to BTS – the new company with more than half a century's experience.



Production Switcher R 102 A/E



LDK 90 CCD Camera



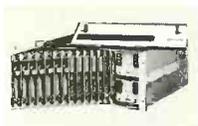
Automatic Studio Camera KCM 125



CCD Telecine FDL



CCD cameras, graphic animation and paint systems,
 Master Control, production and distribution switchers,
 processing systems. What else do you need?



Distribution Switching Systems



Autom. Studio Camera LDK 6/LDK 26



Monitor MC 22



Portable Camera LDK 54



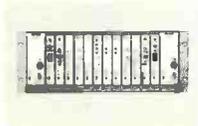
Recorder Camera KCB 1



VTR BCN 52



Graphic Animation System FGS 4000



Sync Pulse Generator IGT

USA Corporate Headquarters, 2300 South
 2300 West, Salt Lake City, Utah 84119; Mailing
 Address: P.O. Box 30816, Salt Lake City, Utah
 84130-0816, USA, Phone: (801) 972-8000,
 Easylink: 62454644, Telefax: (801) 972-6304.
 Sales and Service Headquarters, 900 Corporate
 Drive, Mahwah, New Jersey 07430, USA,
 Phone: (201) 529-1550, Telex 0233762558,
 Telefax: (201) 529-5843.

BTS Broadcast
 Television
 Systems GmbH
 A joint company of Bosch and Philips

Circle 105 on Reader Service Card

N A B '88 7

ty-fifth annual Na-
l Association of
casters convention
e true strength of the
dustry—Local Amer-
in Dallas, the
ough April 1 show
the theme of

reverse focus from
"Leading in America"
theme was an attempt
view the industry as a
finely tuned machine, this year's
attention to the importance of the
local broadcaster inverts that
thinking. Acknowledging the con-
tributions of the local broadcaster,
both to the industry and to his
community, is at the core of this
year's tone-setting viewpoint,
examining the various,
individual

components that make up the larger machine.

BM/E serves the local broadcaster as well, especially when he is preparing to attend the most important broadcast event of the year. First, there are the What's Hot sections covering the most exciting preview information available, prior to the convention itself, on TV/Video; Radio/Audio; and RF/Sats, and T&M. Second, broadcasters can turn to the comprehensive Guide to Exhibitors for this year's NAB convention.

For engineers and managers interested in all aspects of the broadcast operation the show will repeat this year for radio attendees the Megarate\$ presentations,

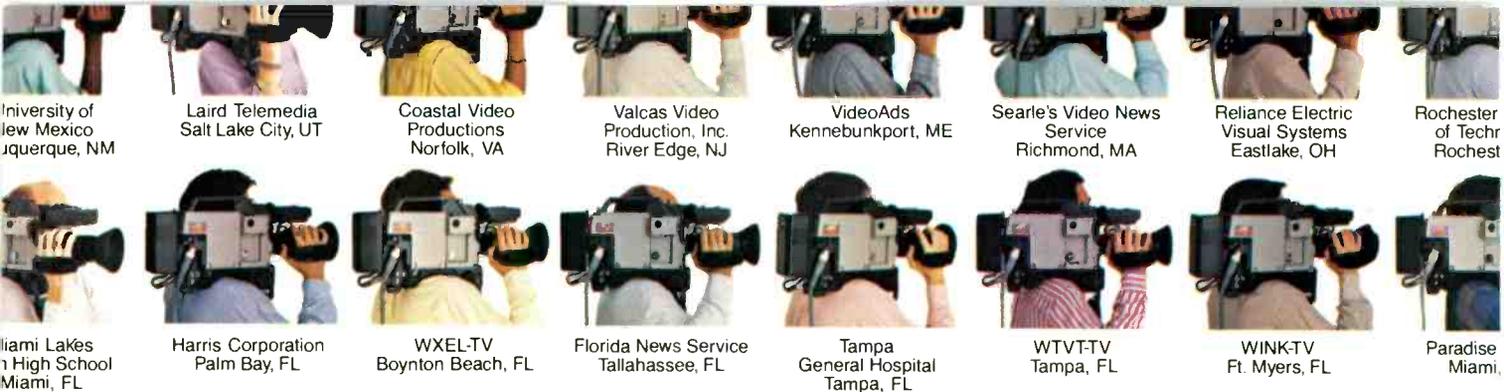
presented twice on Monday. In all, there will be 37 sessions, following the opening general session on Saturday, March 28, for the radio side, not counting the engineering papers. Some of the topics include a general session with the Radio Advertising Bureau and six sessions covering government relations.

Four legal sessions, include a joint FCC session with Mark Fowler, while two research, and two promotion sessions, and an acquisition meeting continue the program. Delving deeper into the concerns of management, sessions will be held by the RAB sales people (including SRA) and there will be 12 management sessions, including two as yet unnamed outside speakers, and one session on minorities. *BM/E*



C O N T E N T S

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What's Hot— Radio/Audio	65
What's Hot—RF/Sats, T&M	89
Guide to Exhibitors .	101



PROCAM[®]

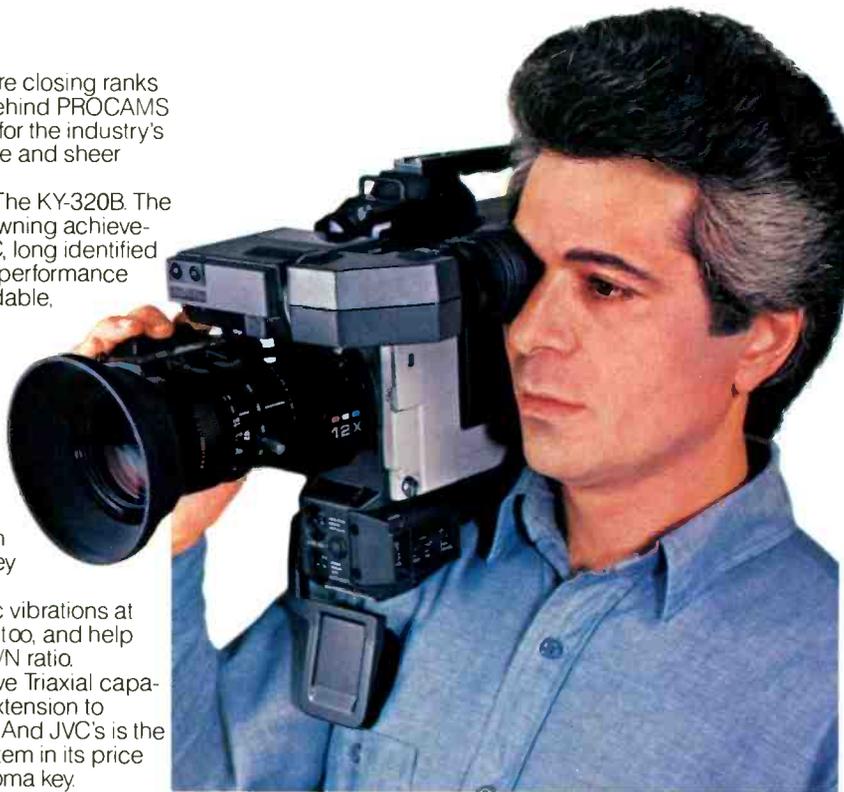
The choice of hundreds in high-end teleproduction.

High-end users are closing ranks solidly and fast behind PROCAMS as THE choice... for the industry's BEST performance and sheer overall value.

The KY-950B. The KY-320B. The PROCAMS. A crowning achievement even for JVC, long identified with ultra-reliable performance in compact, affordable, 3-tube cameras.

Plumbicon* tubes, of course, for high sensitivity, low lag, and minimized image retention, yet always with the highest possible resolution for each image format. They prevent the build-up of microphonic vibrations at high audio levels, too, and help maintain a high S/N ratio.

PROCAMS have Triaxial capability permitting extension to almost a full mile! And JVC's is the ONLY Triaxial System in its price range to offer chroma key.



*Plumbicon is a registered trademark of North American Philips Corp.

Component Video? Of course. JVC's KA-3 Component Adaptor makes you compatible with the increasingly popular M-II format as well as all other 1/2" component formats, and lets you record color signals in component form.

The PROCAMS, KY-950B, KY-320B. Penetrating dozens of new markets. Out-performing the competition in scores of imaginative applications in the hands of demanding professional users.

For a demo, call us toll-free for the name of your PROCAM Rep.

1-800-JVC-5825

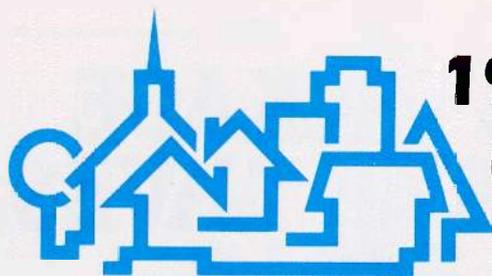
JVC COMPANY OF AMERICA
Professional Video Communications
Division, 41 Slater Drive,
Elmwood Park, NJ 07407
JVC CANADA, Scarborough, Ontario

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Circle 114 on Reader Service Card





1987 NAB ENGINEERING CONFERENCE PROGRAM

Radio

SESSION TOPICS

Friday, March 27

AM IMPROVEMENT

Overmodulation Report
Synchronous Transmitters
NRSC Activities
AM Transmitter Testing
Antenna Broadbanding for Stereo
Panel on Using NRSC Standard

Saturday, March 28

RADIO ENGINEERING

Digital AM Transmitter Modulator
AM Measurements by Helicopter
Diplexing AM Antennas
Low-Cost Directional Antennas
FM Propagation over Water
Optimum SCA Frequencies
FM Transmission Subcommittee Report

Sunday, March 29

RADIO STATION MAINTENANCE

Controlling Power Transients
Panel on Maintenance of Studio and Transmitter
Evening Engineering Workshops

Monday, March 30

AM-FM ALLOCATIONS

International Report
New Class A FM Proposal
FM/FAA Interference Issue

RADIO PRODUCTION

Using Prefab Studios for Radio
Solving Stereo Audio Phase Problems
Multitrack Production Techniques
Broadcasting the Disney World Party
Local Production Enhances Image

Tuesday, March 31

RADIO NEW TECHNOLOGY

Cart Tape Auto Phase Correction
New Generation Routing Switcher
New Technology Radio News Gathering
Radio Transmission Systems

THE DIGITAL RADIO STATION
R-DAT Recording System
Digital Error Correcting System
New Concept Audio Console

Television

SESSION TOPICS

Friday, March 27

TV CAMERAS AND RECORDERS

M-II for Tape Automation
Solving Type C Interchange Problems
Solid State Imagers

TRENDS IN TV AUDIO

Stereo Production
Transmission Methods
Future Audio Systems

Saturday, March 28

TELEVISION GRAPHICS

Selecting Graphic Systems
New Weather Graphics
Improving Graphics Quality
Component Graphic Systems
Managing Still Store Pictures

Sunday, March 29

TV SYSTEM MAINTENANCE

Keeping ACR-25s Running
Automatic VITS Testing
Panel on Maintenance
Evening Engineering Workshops

Monday, March 30

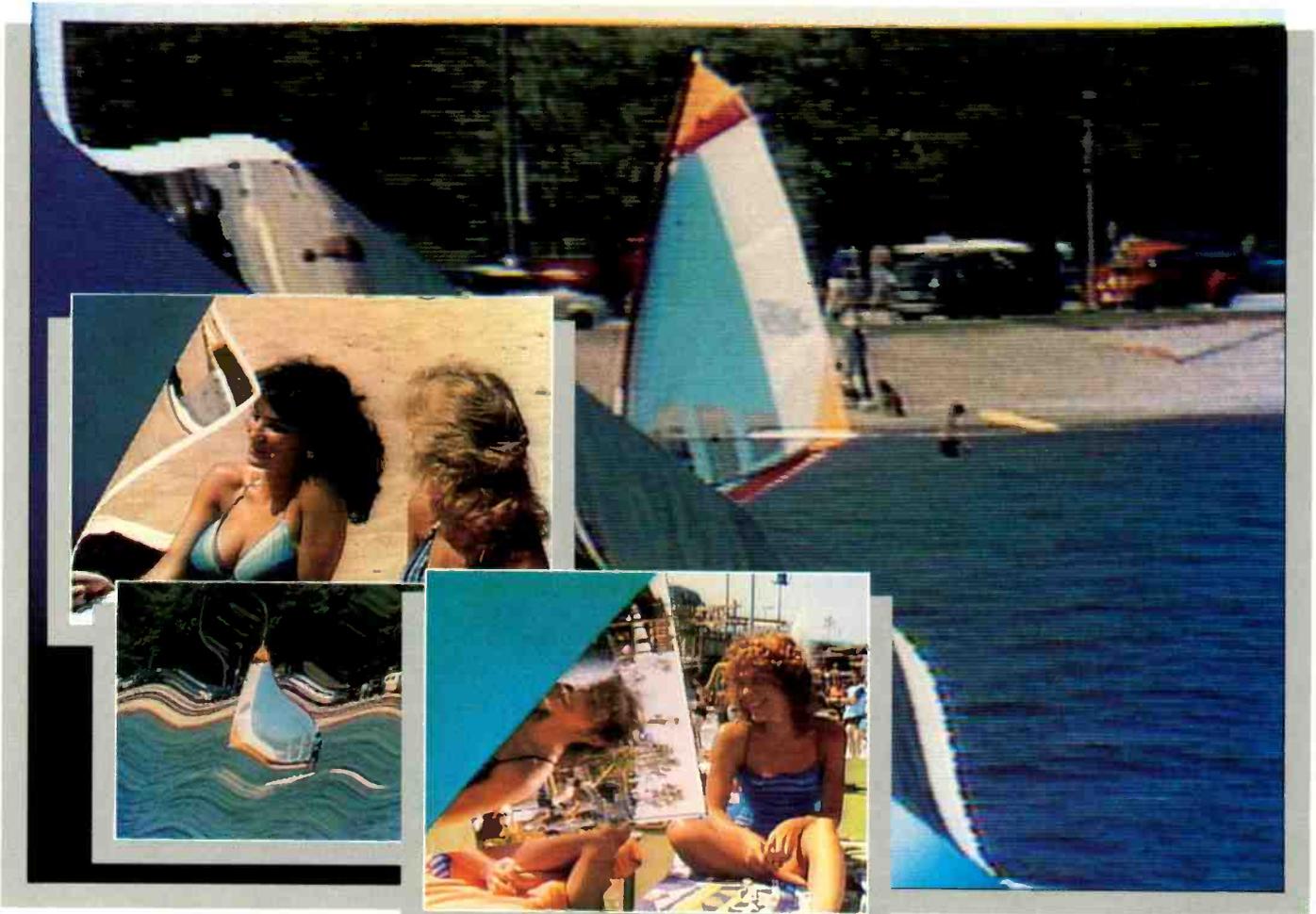
ADVANCED TV SYSTEMS

Broadcast HDTV Project Report
ATSC Activities Report
Compatible HDTV Systems

UHF-TV TRANSMISSION

Building Super-Power Transmitters
Converting to Integral Cavities
21st Century UHF Transmitter
New Circular Waveguide Systems
Improved Transmission Systems

NEC's NEW EFFECTS PACKAGE REALLY LETS YOU MAKE WAVES. AND CURLS. AND ROLLS..



Nobody knows better than NEC America how fast digital video effects technology can change. That's why we built the DVE® System 10 with "soft keys" — keys that let you access disk-based effects just as fast as we could produce them.

Now you can put those keys to work with our new Transition Effects Package.

Get three dimensional looks out of a two dimensional effect. Curl up the image. Peel it right off the screen. Roll it. Create looks that were limited to systems costing over twice as much. Until now.

Push a button and manipulate with the joystick. It's that easy. Just add the option to your DVE System 10 and go to work.

But if you haven't already bought a DVE System 10, you can buy it complete with the option now, or pick up the option later. And the DVE System 10 is now also available in a component version.

The new Transition Effects Package from NEC America. The newest way to get hard work out of your "soft keys."

Photographs appearing above are actual unretouched photographs of video images.)
DVE® is a registered trademark of NEC Corporation.

See us at NAB Booth #3161.

NEC NEC America, Inc.

Tuesday, March 31

TELEVISION NEW TECHNOLOGY

Switchless Transmitter Combiners
Remote Controlled TV Cameras
Transmitter Performance Standards
Fiberoptic Systems
Multichannel TV Antenna System
Digital Video Transmission

CLOSING BANQUET AND ENTERTAINMENT

Special Sessions

Sunday, March 29

HDTV SYSTEM ENGINEERING

Transmission Systems
Bandwidth Compression
US HDTV Experiment Report

SATELLITE SYSTEMS

Designing Efficient SNG Systems
C-Band Site Design by Computer
Earth Stations for Broadcast Video
Evaluating Ku-Band Antennas
Network News Experience

HDTV PRODUCTION

Production Agencies Reports
Studio Equipment Systems
Projection & Display

STUDIO CONSTRUCTION AND ACOUSTICS

Largest New York Radio Studio
The New PBS TV HQ Facilities
Deciding How and What to Buy
Panel on Studio Construction

ENVIRONMENTAL ASPECTS OF BROADCASTING

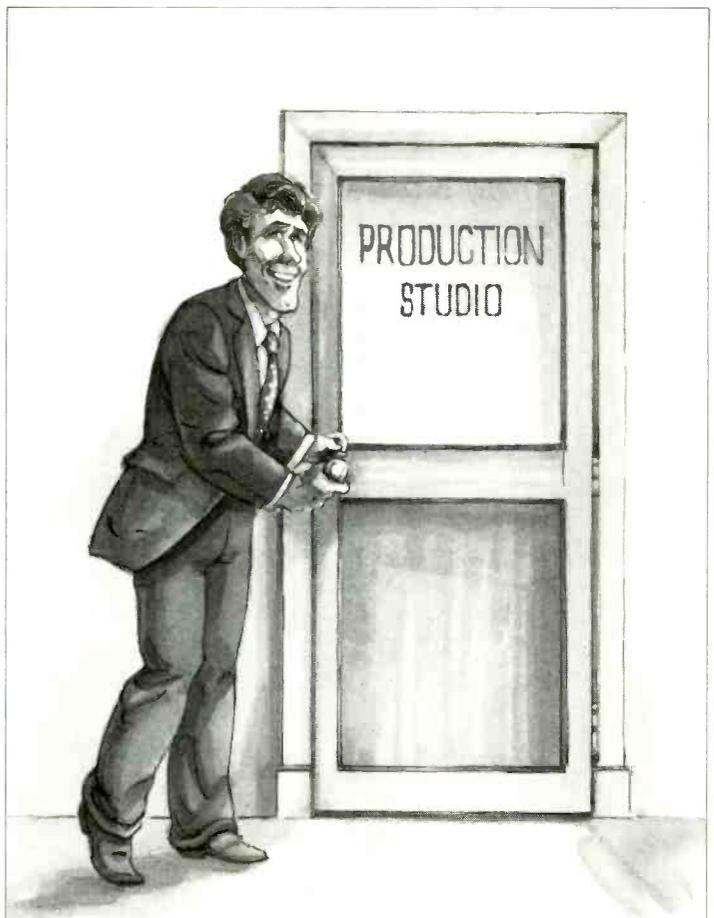
Reducing Lightning-Caused Damage
Non-Ionizing Radiation Measurements
Dealing with PCBs in Broadcast Equipment
Controlling Tower Icing Problems

BROADCAST AUXILIARY

Using the 23 GHz Band for STLs
Digital Aural STLs
Developing Effective RENG Techniques
Frequency Coordination Report & Panel

FCC ENGINEERS FORUM

Technical Rule Changes
Rule Compliance Report
Panel of FCC Engineers



NEC HAS AN ANSWER FOR YOU

If you're questioning where you can find a top quality digital video effects system for under \$30,000, take a look at the DVE[®] System 100 from NEC. It has many of the features offered by the DVE System 10 except 3-D rotation and perspective. But it has pattern select and can be more easily used live. You get the kind of quality, versatility and reliability you've come to expect from NEC: All for only \$29,500. The DVE System 100 from NEC. The choice to make when you don't want to settle for less.

NEC

IMAGINE WHAT WE'LL DO FOR YOU

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Canon Broadcast

Designed to meet all your



PV40x13.5BIE for 30mm and 25mm cameras.
The Olympian—proven at the 1984 Olympic Games, its 40X reach is perfect for sports and all outdoor broadcast operations.

Focal length: 13.5-540mm (27-1080mm w/built-in extender)

Max. Relative Aperture*: 1:1.7 through 270mm
*25mm format 1:2.8 at 540mm



P18x15BIE for 30mm and 25mm cameras.

The Widest—a very wide 60° angle of view plus incredible edge-to-edge sharpness, fidelity and sensitivity. Supplied with 1.5X and 2X built-in extenders plus pattern projector.

Focal length: 15-270mm (30-540mm w/2X extender)

Max. Relative Aperture*: 1:2.1 through 218mm
*25mm format 1:2.7 at 270mm



PV14x12.5BIE High Resolution Lens for 30mm and 25mm cameras.

A Unique Design—featuring extensive use of Fluorite lens elements, this lightweight, compact 14X studio lens provides high sensitivity and critical sharpness at all focal lengths.

Focal length: 12.5-175mm (1.5X and 2X extenders built-in)
Max. Relative Aperture*: 1:1.6 at all focal lengths
*25mm format



J15x8.5BIE for 2/3" cameras.

2/3" Economy—full utility for all studio situations, combining a 15X zoom ratio with an M.O.D. of under two feet, a 54° angle of view and high sensitivity throughout the range.

Focal length: 8.5-128mm (17-256mm w/built-in extender)

Max. Relative Aperture: 1:1.6 at all focal lengths



J18x9BIE for 2/3" cameras.

Greater Reach, Lighter Weight—nothing matches the 18X zoom power of this lens—and it weighs less than 4 lbs.! It increases the flexibility of any portable camera.

Focal length: 9-162mm (18-324mm w/2X extender)

Max. Relative Aperture: 1:1.7 through 116mm
1:2.4 at 162mm



J14x8 BIE High Resolution Lens for 2/3" cameras.

Super wide (60°) and super sharp from corner-to-corner. This compact lens also provides a 14X zoom ratio and built-in 2X extender.

Focal length: 8-112mm (16-224mm w/built-in extender)

Max. Relative Aperture: 1:1.7 through 91mm
1:2.2 at 112mm

See us at NAB Booth #3100

Television Lenses. needs. Now and in the future.



J45x9.5 BIE for 2/3" cameras.
Incredible 45X reach with your 2/3" cameras!
Perfect for sports and all outdoor E.F.P.
applications.

Focal length: 9.5-430mm (19-860mm w/built-in
extender)
Max. Relative Aperture: 1:1.7 through 201mm
1:3.0 at 430mm



J25x11.5BIE for 2/3" cameras.
Greater Reach—a 25X zoom lens designed
specifically for 2/3" cameras. The power and
scope of 1" systems, the economy and
efficiency of your 2/3" cameras.

Focal length: 11.5-288mm (23-576mm w/2X extender)
Max. Relative Aperture: 1:1.6 through 220mm
1:2.1 at 288mm



J20x8.5BIE for 2/3" cameras.
Two Assignments—use a 13X zoom for ENG,
use the J20x8.5BIE for studio or outdoor
broadcast assignments—with the same 2/3"
camera!

Focal length: 8.5-170mm (17-340mm w/2X extender)
Max. Relative Aperture: 1:1.6 through 130mm
1:2.1 at 170mm



J13x9BIE for 2/3" cameras.
The Portable Standard—used by cameramen
around the world under all conditions,
the J13x9BIE is a proven performer with
superior sharpness and sensitivity.

Focal length: 9-118mm (18-236mm w/2X extender)
Max. Relative Aperture: 1:1.6 through 99mm
1:1.9 at 118mm



J15x9.5 for 2/3" cameras.
Quality plus Economy—you can't buy more lens
for less money. Lightweight and sensitive, it meets
the needs of both cameramen and accountants
yet lives up to its Canon name.

Focal length: 9.5-143mm
Max. Relative Aperture: 1:1.8 through 112mm
1:2.3 at 143mm



J8x6 B Ultra Wide-Angle Lens for 2/3"
cameras.
The widest of the ultra-wide zooms at 72.5°
this incredible 8X lens also has a M.O.D. on
only 11"—it's great for interviews!

Focal length: 6-48mm
Max. Relative Aperture: 1:1.7 through 33mm
1:1.9 at 48mm

Canon

Optics Division

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Dallas Office: 3200 Regent Blvd., Irving, TX 75063 (214) 830-9600. Chicago Office: 100 Park Blvd., Itasca, IL 60143 (312) 250-6200
West Coast Office: 123 Paularino Avenue East, Costa Mesa, CA 92626 (714) 979-6000
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ANNOUNCING A TAPE SO ADVANCED, IT DEMANDED A NEW GENERATION OF VIDEO EQUIPMENT.



FUJI'S NEW M401 MII 1/2-INCH METAL VIDEOTAPE.

Fuji introduces the world's first 1/2-inch metal videotape, Fuji M401. M401 technology is so advanced, it's taken three years for the broadcast world to develop a compatible system of video equipment.

With M401, your picture quality is comparable to 1-inch tape at considerably less cost. You also get a tape that can withstand the rigors of the broadcast environment, in the editing room as well as in the field.

And if the idea of metal videotape surprises you, the fact that it's from Fuji shouldn't. We've been making breakthroughs in broadcast technology for more than 25 years.

So ask your Fuji representative about the tape the world has finally caught up with. Fuji M401.



FUJI PROFESSIONAL
VIDEOTAPE

© 1987 Fuji Photo Film U.S.A. Inc. Magnetic Products Div., 555 Taxter Rd., Elmford, NY 10523

WHAT'S hot

TV/VIDEO

What's hot? Video's hot, that's what. Video technologies will have the greatest effect on the circulation of attendees at NAB '87 in more ways than one. But that is not to say things won't be hopping where other product categories are being shown. It's just that there's so much happening in video today you'll be able to feel the heat from the sheer excitement of new technologies.

CCDs, smaller studio camera tubes, Beta SP, M-II, HDTV, and videographics are just some of the technologies that will be the driving forces behind new product introductions. And equipment we're already familiar with will be getting better.

Look to the digital domain as the place where some of the hottest new developments will occur in the video recording area. This is the year prototypes turn into production models. For graphics and effects systems, software updates will be the thing to look for. Computers and automation will continue to play increasingly important roles.

Expect to find surprises in every product category, including paint systems, character generation, production switchers, and editing systems. They'll be there.

Cameras

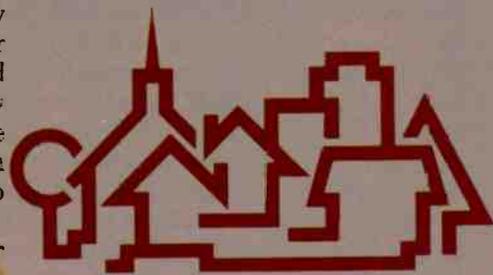
As always, new technologies and corporate changes combine to make the camera field a dynamic product area. Much of the action on the technology side is taking place in reduced size and weight in addition to new imaging inno-

ventions, manifested most clearly in the smaller, lighter, and better CCDs. An adjunct to the demand for small, light cameras, not only outside, but in the studio is the increasing popularity of $\frac{2}{3}$ -inch tube cameras as main studio units.

This year's show makes it clear that the concentration of engineering and marketing dollars is going for $\frac{2}{3}$ -inch and CCD technology. NEC's (3161) recent announcement of a large contract with NBC for its ENG camera needs will focus more attention on the company's SP-3A CCD model. The unit features built-in variable speed, electronic shutter and universal integration with on-board VTR formats.

Other new entries into the CCD market are also of particular interest. BTS (3140), the joint Philips/Bosch company, will introduce a completely new frame-transfer CCD offering improved resolution and smear elimination. BTS will also show its KCB 1 camcorder system. Ikegami plans to fully enter the fray with an introduction of a CCD model, details to be revealed at the show. Thomson Video (3190) will announce the TTV 1640, a three chip CCD camera with Beta recorder.

Panasonic's (3216) AK-400 CCD camera with electronic shutter will be featured as part of the full M-II line up. Sony's (3100) move comes in the form of the



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BVV-505 camcorder, incorporating the BVV-5 Beta SP recorder. Ampex (3108) is expected to have some major announcements at the convention as it continues to re-establish itself in the camera market, making use of Beta SP camcorder technology. The CVR-5 VCR can be combined with the Ampex cameras and will be demonstrated at the Ampex booth. The units will be manufactured in the United States at the company's Colorado Springs facility. Adding to the list of CCD manufacturers, Toshiba (3302) will exhibit its new three-chip CCD broadcast camera as well as its family of PK-50 tube cameras.

Ikegami (3150), besides its new CCD camera, will naturally have the ever-present HL-79E as well as its camcorder, the HL-95, which is designed to accommodate both Beta SP and M-II format recorders. The U.S. plans of Thomson-CSF are somewhat of a question mark at this time, but look for the company to be at the show in the form of the French Thomson Video Equipment company, exhibiting half-inch recorder cameras in addition to its full broadcast line. ENG cameras will also be available from Sharp (3305).

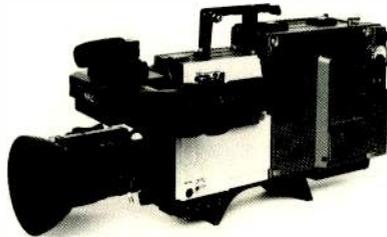
Hitachi (3160) will announce a new version of its Z-31 series of cameras, the Z-31A high-resolution auto setup, solid state ENG camera.

JVC (3180) too will offer many new products in the technology exploited by its new ProCam line of professional three-tube color cameras. The KY-950B, an upgraded version of the KY-950, has improved resolution of 700 lines and S/N of 59 dB, plus triax control and "hot shoe" viewfinder. Also new will be the RS-T900 triax adapter.

Studio cameras will be no less in evidence as the developments in 2/3-inch tube cameras seen at last fall's SMPTE show will continue at NAB '87. Sony will have impact here too, showing studio/field production units with 2/3-inch mixed field Plumbicon or Saticon tubes in both triax and multicore configurations, along

with the 360 camera control unit.

Computer control is available with Hitachi's SK-120D featuring one-inch LOC diode gun Plumbicons. The SK-110D and SK-97D will also be demonstrated.



NEC's SP-3A three-chip CCD camera can accept different camera recorder formats, and has a variable-speed electronic shutter.

When discussing studio cameras, all eyes will turn at some point to the BTS offerings. The LDK 6 and 26 automatic studio field cameras pioneered the fully computerized aspects of the modern studio camera and will continue to show its capabilities this year along with the LDK 54 portable unit. Look for triax developments to come from this company. Also available at this booth will be the KCM 125 studio and location camera and the KCF 1 light production camera system.

One of the hottest products in studio cameras will come from Ikegami, well known for its innovations both in ENG and studio camera technology. A new fully automatic, microprocessor-controlled system will be announced, consisting of the HK-323 one-inch studio camera and the HK-323P portable ENG camera. Up to 40 cameras can be controlled by one MCP maintenance control panel, and triax remote operation is possible up to three miles away.

Hitachi's Computacams will be on display as well as Plumbicon tube cameras and the Z-31 ENG camera. High-quality cine cameras will highlight developments this year with large exhibits from Arriflex (3553), notably the 16SR-2 film cameras and including its full range of fresnels and other lighting products. Look for innovations in this area from Cinema Products.

Lenses, tubes, accessories

The lens and tube market, quite naturally, follows the camera business, or at least develops coincidentally with it. Thus it is that 2/3-inch and CCD offerings are among the most prominent new products at this year's show. Variations in zoom lens and wide angle technology will also be seen in Dallas. Canon (3300) carries the standard into the convention with three new additions. Once again, size, weight, and quality form the hierarchy of critical elements for image concerns. Canon's answer includes three high-performance ENG lenses: the J8x6 with 2X extender; the J18x8.5 IRS with internal extender; and the 2.8-pound J13x9 IRS type 2A. All are suited for CCD use. Also exhibited will be the J15x9 with macrofocusing the JS18x8 B-IE for field and studio and J45x9.5B-IE for 2/3-inch cameras.

Fujinon (3410) has slated the 1987 NAB convention for some major introductions, while declining to say specifically what they might be. What is known, however, is that the full line of 1/2-inch, 2/3-inch, and 1 1/4-inch camera lenses will be displayed, ranging in style from the 5.5 to 48 mm wide angle, and 36 to 1600 mm.

New television lenses from Schneider (3221) reconfirm the attraction in the marketplace to the 2/3-inch camera tube. The 17x8.5 mm studio/EFP zoom has a built-in diascope and 2X extender; also for 2/3-inch use is the 35x11 tele/EFP zoom with microprocessor-controlled zoom and focus cams, diascope, and 2X extender. The 14x apochromatic ENG/EFP lens is for cameras with pickup devices covering 11 or 8 mm diagonal. Established products are the 14.5X studio zoom for 1- and 1 1/4-inch tubes, and the lens rental and repair service.

Schwem Technology's (2553) contribution to lenses comes with its Gyrozoom 60/300 image stabilizing lens, a compact unit that fits most ENG/EFP cameras and eliminates high-frequency vibration for handheld shots from moving vehicles or on foot.



NAB, Dallas
Booth 3140
March 28 - 31, 1987

The new LDK 90 CCD camera takes the fear out of even the most difficult situations

Lags, burn-in, smears - everyday horrors a cameraman had to face.

Until now. The new BTS LDK 90 camera with high resolution frame transfer CCD's sets new standards for ENG cameras. With not just superior picture quality, but the best obtainable. Negligible registration error, perfect geometry, corner-to-corner sharpness, no comet-tailing, no microphonics.

Quick-fit adaptors allow the camera to be used for on-camera recording (Betacam and other professional

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These facts combine to put an end to the everyday horrors of television production.

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900 Corporate Drive, P. O. Box 618, Mahwah, New Jersey 07430, USA, Tel. (201) 529-1550, TX: 37-62558.

Robert Bosch Inc., TV Division, 6811 Century Avenue, Mississauga, Ontario L5N 1R1, Canada, Tel. (416) 826-6060, TX: 06-97604.

BTS Broadcast Television Systems GmbH

A joint company of Bosch and Philips
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Angenieux (3020) is staking its future on the increasing popularity of $\frac{2}{3}$ -inch cameras for use in studio as well as EFP applications. This is evident by new lenses including the 40x9.5, 9.5 mm to 380 mm f/1.3 field lens. That is not to say they are abandoning one-inch tube cameras, thus the 40x14 14 to 560 mm f/1.9 field lens. In the larger tube category, what's new is the 40x18, 18 to 720 mm f/2.5 for 1- $\frac{1}{4}$ -inch. All previously mentioned lenses have heater and extender. Century Precision Optics (2422) will be introducing new products and will show its full line of specialized lenses.

The tubes and CCDs at this year's show will demonstrate advances in imaging devices commensurate with advances in cameras and lenses. Amperex (3238) will unveil four new 604 x 576 pixel frame-transfer CCD image sensors; the NXA1011 for three-chip color cameras and single-chip mono PAL; NXA1031 for three-chip color or single-chip mono NTSC cameras and the 1041 for single-chip NTSC color cameras. Established products will include diode-gun and triode gun camera pickup tubes in $\frac{2}{3}$ -, one-, and 1- $\frac{1}{4}$ -inch versions.

Two new camera tubes will be demonstrated by EEV (2626): the XQ1410/P8520 30 mm triode gun Leddicon and the XQ3457/P8474 $\frac{2}{3}$ -inch mixed field Leddicon. Also on hand will be Leddicons for studio, EFP and ENG cameras, as well as Vidicons for telecine and caption scanning. The RCA New Products Division (3292) will be showing their new line of diode gun Vistacons.

Video recording

One-inch Type C is here to stay. At least for the foreseeable future. This is not to discount the importance of digital video recorders, like Sony's D-1 tape machine, or of disk recorders such as the Abekas A62, now used primarily for special effects. Those technologies, or some related digital form, are expected to supplant one-inch. But don't hold your breath, because it will be some-

time after 1990 when it happens. Maybe the NAB convention will be back in Dallas again by then.

Of course, one cannot ignore the ubiquitous $\frac{3}{4}$ -inch machines and the rapidly encroaching impact of the half-inch formats. Yet, for most operations, one-inch Type C is the heart and soul of the facility. Ampex (3108) with its VPR series and Sony with its BVH2000 seem to dominate the one-inch market. Still, Hitachi sells a lot of its HR230s and similar models. What's on the horizon, however, and where most of the innovations, at least those announced before the show, are coming is not in one-inch but in the smaller formats.

In addition to its VPR 3 model with Zeus, Ampex will be making a major push in the small, format area with the Betacam SP product; the already mentioned CVR-5 camcorder VCR, the CVR-35 field portable VCR and the CVR-75 studio VTR for ENG and EFP and studio applications will be announced, containing full record/play/edit capability with integral TBC. The AST system for still frame and slow motion will also be shown

should have a look. Specifically, JVC will show other equipment, namely the CR-8500 editing recorder, compatible with all major editing controllers. Of course, if you're interested in M-II you might go directly to Panasonic (3216), which is showing the AU-550 field editing VCR and a new enhanced control panel for the AU-650 studio unit. The AU-500 field recorder will also be displayed.

On the other side of the small-format coin lie the Beta products, which, as already mentioned in regard to Ampex, will receive a boost this year with many new introductions. BTS (3140), a joint Philips/Bosch company will introduce the BCB 10 studio player, the BCB 15 Betacam studio player with dynamic tracking, and the BCB 40 studio recorder/player. In rounding out the line, look for the BCB 21 field player and model 25 field recorder/player.

Sony (3100), having the solid support of so much Betacam equipment from other companies has revealed no new products. This was two months before the convention, however. What they



The JVC Model CR-850U editing recorder is compatible with all major editing controllers.

Long expected and now arrived will be new M-II equipment from JVC (3180). Though none of the specifics were available at press time, those interested in M-II

are certain to have for the first time are production models of the SP, including field and studio units, and VCRs for camcorders.

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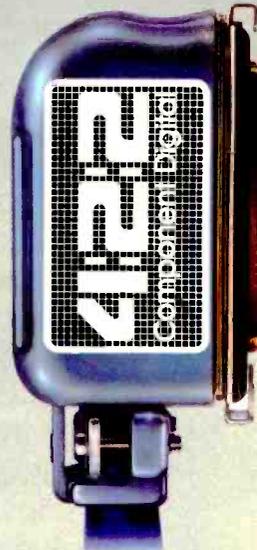
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will be a great deal of activity in this area of video recording technology, though it's difficult to predict if there will be any earth-shaking innovations. What there will be is a lot of new hardware making use of both digital disk and tape formats. Sony, in addition to bringing its half-inch gear and hosting an HDTV theater right in its booth, will show up with the DVR-1000, its D-1 machine. This demonstration will be in conjunction with Quantel's Harry and Encore graphic effects generators. It will also be interfaced with the Rank Cintel Artfile and Grass Valley Kaleidoscope routed through an experimental VGV digital switcher.

Though little is known about the details, NEC (3161) has announced that it will debut a digital video recorder at the show using new technology. What exactly that is remains to be seen. This could, however, have a major impact on the course of digital recording. Hitachi (3160) has decided to enter the arena as well, with a new unveiling of its HDTV system with a digital VTR. Toshiba (3302) will also be showing HDTV equipment.

A similar situation exists with digital disk recording technology. Many announcements are expected, but few details are available. Much of this technology is used for video effects, most notably the Abekas (3527) A62 recorder with hard disk storage and real-time random access, but much of it is also making its way into the audio/video interface. Digital disk storage for both program material and control functions for editing is becoming popular, and the future impact in broadcasting of such technologies as CD-ROM and CD-I remains to be seen.

Asaca/Shibasoku (3278) will unveil its new ADR-5000 magneto-optical video disk recorder for broadcast and post-production facilities. It's capable of high-density recording and has a record/play time of 10 minutes for continuous play or 18,000 still pictures.

Other recording items of interest to watch for at the show are

companies such as Merlin (3408) Engineering, which offers a vertical interval stereo system as well as a range of VTR modifications. Also, Polaroid (2837) offers the FreezeFrame video image recorder, a unit that makes prints and slides from video.

Merps and video carts

The degree to which video cart systems can be more included in station operations has long been considered by both manufacturers and engineers. One of the obstacles was concern over involving the machines responsible for the precious commercial inventory in a recording or distribution function. Due to many advances in both hardware and software, we may be heading in that direction as witnessed by product announcements for the NAB show.

The debut of La-Kart LS from Lake Systems (112), a random access, automated library system capable of holding from 500 to 1500 cassettes operable in Beta, Beta SP, M, or M-II formats may bring us closer to that point. The system also will have new software allowing LS to record any material, especially satellite feeds that can be preprogrammed into



The Cart Machine, the Odetics TCS2000 automated videocassette player, interfaces with traffic and master control computers.

the computer terminal.

Also with new software at this year's show will be Odetics (3586), exhibiting its TCS2000 automated video cassette player for Betacam and other small formats. The new software will allow interface to station traffic systems and both automated and manual master control, having a capacity of over 280 cassettes without reloading.

Software will be at the heart of Sony's new Betacart multicassette system and its new prototype Library Management system. Ampex will show its ACR 225 digital video cart spot player that attracted so much attention last year.

A.F. Associates' (3170) Pegasus is back with commercial compilation and station automation capabilities. The Asaca (3278) automated videocart playing system for both Beta and M-II will be displayed with its new features. On the economy side of cart automation, go see Broadcast Systems (3418) and its new DC-80 economy automatic video cart machine.

Merlin Engineering will unveil three complimentary software packages for master controlling Betacarts and other tape machines. The IBM-PC based Q-Driver system allows operation of Betacarts directly from a traffic system either alone or in conjunction with other tape machines.

Rational Broadcast Systems will be showing its complete automation, trafficking, and billing system for broadcast, cable, and network at its own suite, and not on the exhibit floor.

Tape

Videotape manufacturers, like all others, follow marketplace demands. The broadcast market now has significantly different and largely greater demands on the tape makers than ever before. This is due, in part, to the furor over formats, the onslaught of metal particle tape-using machines, demands for higher quality (requiring better formulations), and digital technology.

Expect digital technology to try and steal the show in the videotape category. Sony will show introductions in digital video cassettes as well as its new tape for SP in both 30- and 90-minute sizes. The D-1 cassettes will be shown as will standard SP and U-matic tape. Also on hand will be 8 mm and one-inch Type C, as well as high definition video tape.

Also involved in half-inch, 3/4-inch and 8 mm tape is Kodak

(3208). New this year will be its 8 mm video duplicator system. Ampex will be leading the way with Betacam SP metal particle tape to support its commitment to that format. In addition, the company will show new 19 mm digital videotape. Its full line of one-inch, ¾-, and half-inch video cassettes will also be available.

Fuji (3240) will introduce the new H521E/HJ21E-BR ¾-inch in addition to its full line of one-inch, Betacam, and M-II metal particle tape. Fuji (3240) will also show 8 mm video cassettes. On display at the 3M booth (3120) expect to find 479 and 480 one-inch tape; the PB/BC videotape in five and 20 minute lengths, and the MBR ¾-inch. Agfa-Gevaert (2815) is showing its new 192-HGX Hi-Fi half-inch video pancake and the U-matic and studio performance half-inch VHS.

RAKS, a new company, will show videotape in cassette form for Beta machines in various configurations.

Production switchers

The major advances in switchers seem to be coming in the areas of increased economy (without sacrificing performance) and adding more features, such as effects and more mixing capability. Ampex (3108) continues its concerted effort to make known its considerable status in the production switcher market. New this year will be the compact, low cost AVC Series switchers for mobile situations and small broadcast facilities, and off-line edit suites. Also, attendees will see the NAB debut of the company's premier AVC Century switcher available in two or three mix effects versions with 16 or 32 video inputs for the most demanding high end post production and major broadcast markets. Existing products on display will be the AVC and 4100 series of switchers.

Grass Valley Group (3112), in light of adding features, will introduce the Model 200 production switcher featuring linear keying, multiple external key inputs for each keyer, and expanded wipe set for each of the two M/Es. Es-

tablished Models 100, 100CV (component video), the well known Model 300, and 1680 series production switchers are slated for demonstration.

Central Dynamics (3080) is presenting the Strata-7 microprocessor-controlled switcher featuring video overlay systems and super SFX with simultaneous processing of up to seven different video levels. The economical CD400LE is new, offering four matte generators and capability to display simultaneously two chromakeys and four luminaire keys. Series 80 switchers will also be there.

Crosspoint Latch (3533) can be counted on again this year to add exciting features to its reliable switchers, including the 6112 and 6109 models that now have insert fill and external border inputs. The 8200 Excalibur dual TBC/switcher combination with digital effects and audio follow continues the trend toward added features. Other units on display will be the 6116 component switcher and the compact 6119. Filling out the booth is the 6139 three mix effects production switcher.

The BTS (3140) entry will be represented mainly by three models: the R51ME, R102ME, and R61ME compact production switcher. Intergroup Video (3312) will announce the new Model 9600 with Reflex (reprogrammable effects) and a new 4001 pattern generator. Established products include the 9300 and 9400 switchers.



Microtime's RP-1 digital video effects system features rotation with three variable axes and internal key with soft edge.

Digital effects

In digital video effects as in animation, the buzzword for NAB '87

is "3D." While two-dimensional effects systems are far from passe, 3D is in the spotlight more than ever, in spite of rumblings to the contrary.

One of the newest 3D effects systems on the floor this year will be Microtime's (3086) RP-1, seen previously at SMPTE. This flexible and capable system may be purchased as a 2D system and later upgraded by the addition of perspective and rotation. In addition to a complete range of effects, the RP-1 features a built-in matte channel, and can be configured for dual-channel operation with an optional, plug-in digital compositor.

Also making its NAB debut will be the Eclipse system from Digital Services Corp. (3304). The Eclipse features unusual curved effects (an optional add-on) including an automatic cube builder and "picture twist." All expected 3D and 2D effects are included, of course.

NEC America (3161) will introduce the latest model in its successful DVE series—the DVE System 10C component effects system. Designed especially for the off-line post-production market, the 10C has full 3D perspective and rotation and all the other features of the composite DVE. New effects for the composite system, demonstrated first at SMPTE, will include such creative illusions as "curl," "roll," "peel," and "fold."

Kaleidoscope, the component digital effects system introduced last year by Grass Valley Group (3112), is now in full production. The product has been significantly refined since its original introduction, and is available in single- and dual-channel versions. Look for a demo of the Kaleidoscope interfaced with the Sony DVR-1000 digital VTR and an experimental digital switcher from GVG.

No details had been disclosed at press time, but it is to be expected that Ampex (3108) will have some new wrinkles in its ADO effects system, one of the most successful on the market. Another previously exhibited system that should not be missed is the A53D

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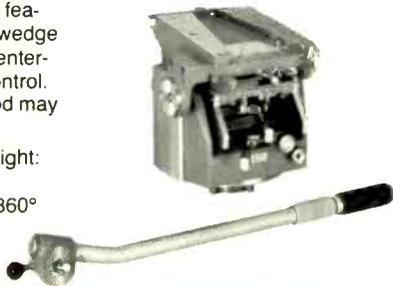
TR-60
Maximum Mounting Weight: 132 lbs.
Elevation: 20-45 inches

TR-90
Maximum Mounting Weight: 198 lbs.
Elevation: 26-48 inches

SC-15 CAM HEAD

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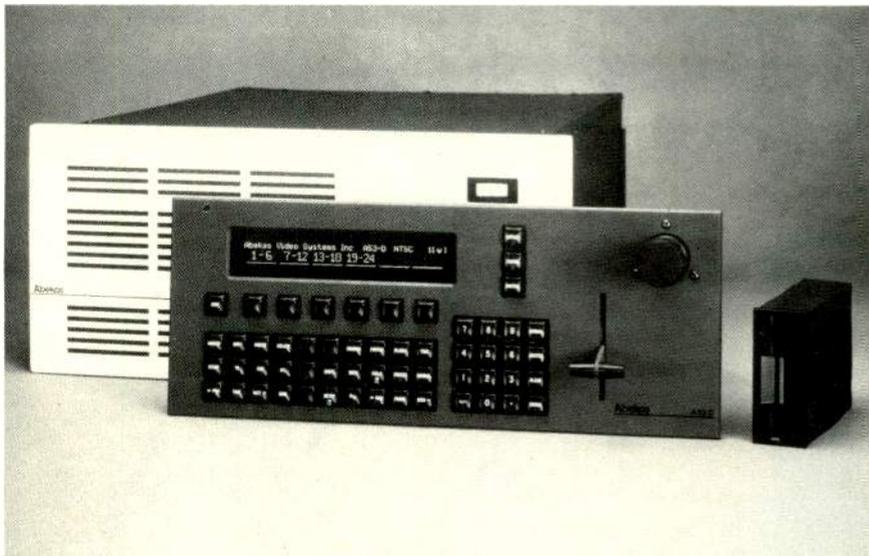
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The Abekas A53-D digital special effects system offers a host of features, including true 3-D perspective.

from Abekas (3527). Abekas will also have its A52 2D effects system and the A62 digital disk recorder.

Perhaps the *creme de la creme* of effects systems, however, are the Mirage and Encore from Quantel (3171). They will be demonstrated in an all-digital configuration with Quantel's Harry and the Sony DVR-1000, and anyone who hasn't seen this demo owes it to himself to stop by the booth.

In 2D effects systems, the must-see booth will be that of Pinnacle Systems (122). Pinnacle will display its two exciting, innovative effects systems, the 2010 and 2020, which caused a stir at SMPTE last fall. The 2020 includes a built-in still store; the excellent quality of both systems belies their unusually low pricetags.

James Grunder and Assoc. (2429) plans to introduce a low-cost digital effects system, the P-153, intended to take the place of its discontinued EFX-1 system. The P-153 will feature zoom along with border color and key options. The EFX-2, EFX-3, and EFX-4 systems will also be featured.

Ultimatte (3552) will feature its unique video matting systems, including the latest model, the Ultimatte-5, with 32K of random-access memory and remote control. The company will also show its Ultimatte-4 and the medium-

priced Ultimatte-200 and Newsmatte-2.

Fairlight Instruments (215) will demonstrate its CVI Computer Video Instrument, which produces a variety of paint-like effects in real time.

Graphics and animation systems

The explosion of video graphics and animation systems that has provided so much excitement at the past few NABs will continue unabated this year, with new software and hardware raising the standards for graphics production to levels that a few years ago would have seemed stratospheric.

The most activity at NAB '87 will be in 3D systems, which, together with digital recording, are the most exciting new developments in video technology. While the systems at the high end are beyond the budgets of most broadcast organizations, there is a growing selection of personal computer-based 3D systems just right for the art department of a TV station or a small- or mid-sized production house. And while they are not as powerful as systems using large computers, their speed and capabilities are increasing rapidly.

The veteran of the 3D PC field is, of course, Cubicomp (3478), whose PictureMaker system broke ground three years ago.

NAB '87 will bring new software enhancements for the PictureMaker, which will be shown in two versions: PictureMaker 30, a 3-D video animation system, and PictureMaker 20, for presentation-making applications.

A brand-new entry will be Digital Arts (2482), which will unveil the DGS 1.0 Digital Graphic System, a 3-D graphics system for PCs, that offers such advanced features as texture, bump, and reflection mapping, and a shadow generator.

Artronics (104), whose VGS Video Graphics System 3D modeling and animation system uses proprietary hardware with IBM AT-like architecture, will bring its new high-speed turbo version to NAB for the first time. Options for the VGS include flash-grab and eight-bit paint with AniMagic real-time 2D animation.

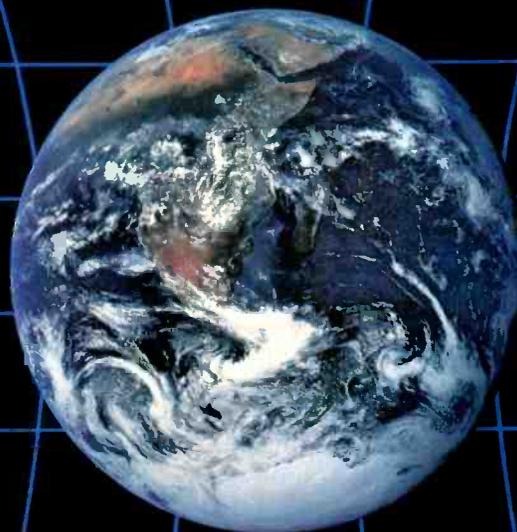
Another PC-based system is the Dimension 32, introduced last year by Quanta (3128) and offering 3D object construction, colorization, antialiasing, and animation.

Expect Integrated Technologies (2787), which recently relocated to California, to show its PC-based 3D graphics systems.

A slightly different tack will be taken by another new company, 3D Animation Transformations (2631), which will unveil the EFX "artist-oriented" computer animation system, based on the Microvax computer system with frame buffer and monitor included.

Dubner (3110) will show its long-established CBG-2LX graphics and 3D animation system with the Third Plane. The high-quality DPS-1 paint system will also be on view.

An interesting recent trend in high-end systems is the use of the Ethernet local area network for multiuser systems. Bosch (now BTS) started it last year, with an off-line modeler for the FGS-4000, and this year, ColorGraphics (3128) is picking up the ball with its ArtStar Workstation, designed to allow multiple and simulta-



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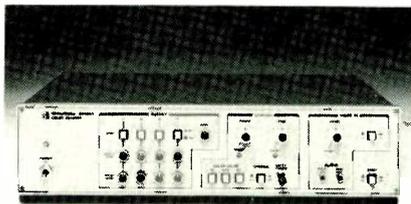
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neous data and graphics transfer through Ethernet with other ArtStar systems. This setup allows multiple on-line users to share data and images.

The ArtStar 3D will have a raft of new features, including a redesigned user interface, real-time 3D animation preview, new 3D text capabilities, real-time animation zoom and scroll capabilities, and 16 individually controllable light sources with Phong and Gouraud shading capabilities. Rendering speed has been increased with an optional Motorola 68020 processor and array co-processor. The ArtStar II also has faster rendering speeds, new text capabilities for multicolored fonts, real-time animation zoom and scroll, and improved user interface.

The groundbreaker in high-end video animation a few years back was Bosch, now displaying its wares jointly with Philips under the BTS logo (booth 3140). The FGS-4000 faces stiff new competition, but has responded with continual product development and refinement. New at NAB will be the High Resolution Output System for the FGS, which produces ultra high-res hardcopy output suitable for four-color reproduction. The Off-Line Modeler, introduced last year, will be seen interfaced to the FGS via Ethernet. And, just announced, BTS will advance its own cause with the introduction of the FGS-4500 Elite, a 3D real time graphics system.

Alias Research (216), which made its NAB debut last year, will introduce a new version of its 3D modeling and animation system that implements multiple cameras, visual "flight paths" for animated objects, and enhanced spline-based modeling facilities. The use of the Pixar Image Computer as a rendering engine has increased rendering speeds as much as 50 times. The original Alias/1 3D graphics system will also be exhibited.

Vertigo Systems (225), which distributed literature at last year's show but did not take a booth, will have a full-fledged ex-

hibit this year of its V2000 animation system, seen at SIGGRAPH and SMPTE. This high-end system has several unusual features and is a "must-see."

Wavefront Technologies (2590) will also show the latest version of their highly praised 3D modeling and animation system, designed for generic hardware including the Silicon Graphics Iris graphics workstation and Celerity renderer.

Other important animation products will include Harry, the innovative digital recording, manipulation, and editing system from Quantel (3171), and the A62 digital disk recorder from Abekas (3527). While very different from each other, both these products are revolutionizing graphics production by enabling complex, multilayered images to be built with no generational loss.

A different kind of animation will be featured by Interactive Motion Control (2771), which will introduce a complete 2D animation system based on its eight-channel 3565 motion-control computer and 2X2 video animation stand. A new Camera Mover system with 16-channel IMC motion control computer will also be introduced.



The CMX 6000 video disk-based film and video editing system features an integral shuttle knob and touchpad.

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**WHAT'S
 hot**

TV/VIDEO

Paint systems

The excitement over 3D has in no way obscured the importance of 2D art/paint systems, of course. Quantel's Paintbox, the standard-setter in this area, will show its latest software enhancements.

Ampex (3108) will demonstrate the Speed Trace option for the AVA-3 graphics system. Speed Trace, first seen at SMPTE, allows a solid object to be rapidly traced and entered by the computer, saving hours of work for artists.

Chyron (3072) will show new video circuitry for the Chameleon Paint System designed for direct display of high-quality composite video images as well as RGB.

Quanta (3128) will show its Quantapaint line, consisting of the Quantapaint 8 (eight-bit) and Quantapaint 32 (32-bit, full color) paint systems. The Quantapaint 8 has new software with an easy-to-use menu, RGB color camera capture, and new color palette.

Aurora (3592) will feature its recently introduced Aurora/280 paint system with optional 3D modeling capabilities. The PC-based Aurora/220 and Aurora/75 digital videographics systems will also be shown.

Artronic (104) will feature its Video Paint Library/VPL, which offers 1200 frames of still storage.

Character generators

Chyron (3072), the first name in character generation, will introduce many new enhancements to its line. In addition to a host of new high-resolution, high-quality fonts, the VP-2 will now be able to transfer text and graphic images to the Chameleon paint system through the Chameleon's Text Grab feature.

The Scribe anti-aliased text generator will be enhanced with the addition of Logo Compose, which allows creation of antialiased logos and graphics on a digitizing tablet; Preview Channel for large-scale mass storage of messages and fonts with streaming tape backup; and high-speed communications networking of multiple Scribe systems, allowing for sophisticated multichannel op-

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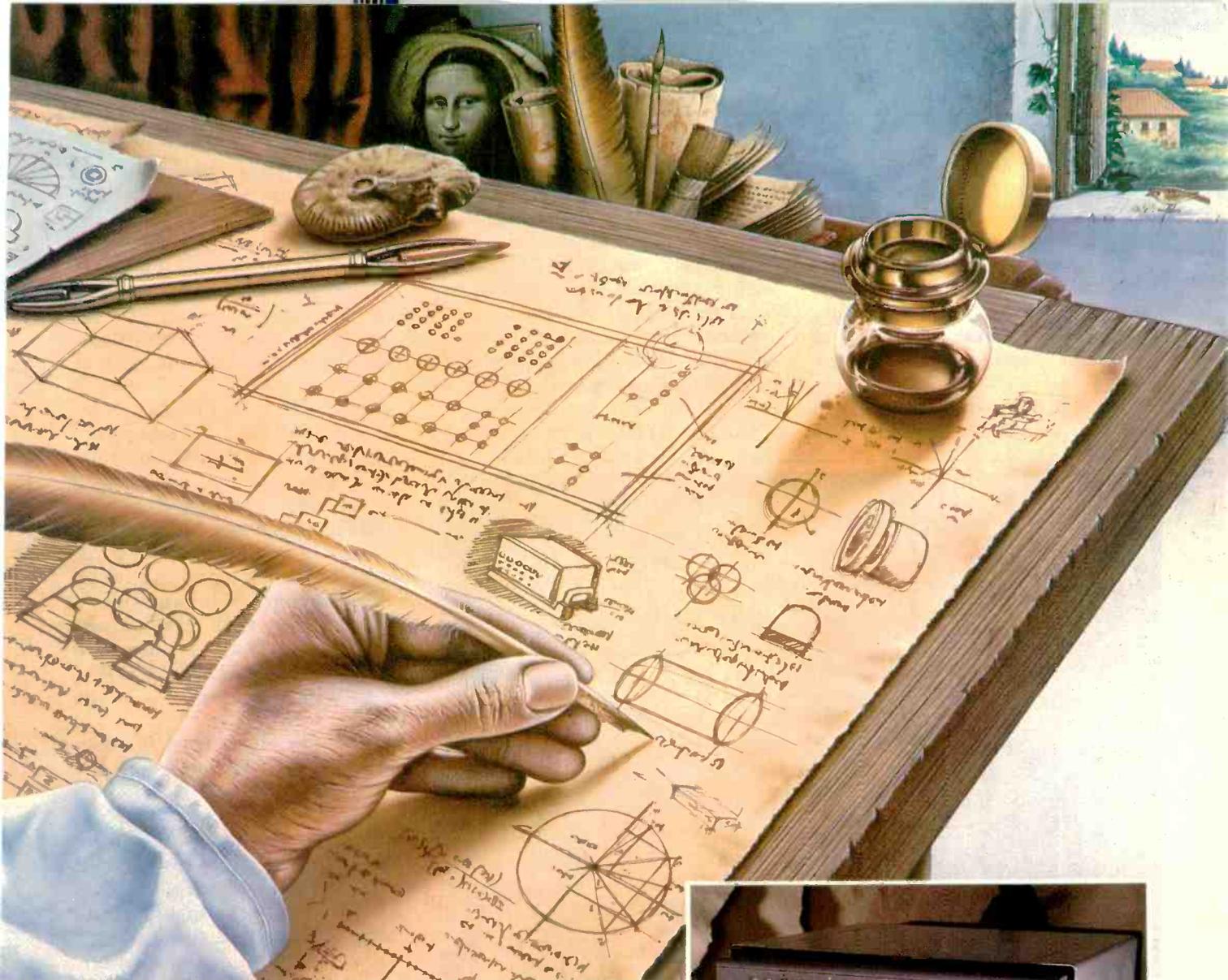
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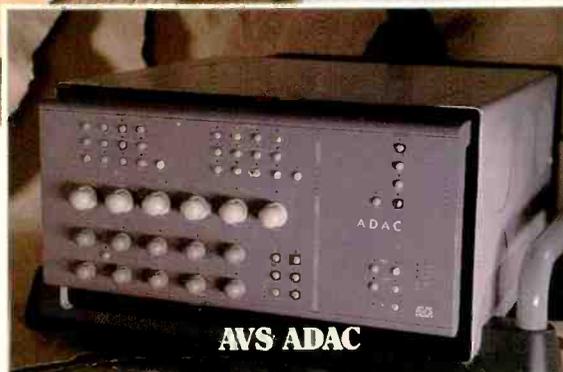
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Enhancements for the RGU-2 system include digital video effects with motion: spins, tumbles, zooms, linear splits, and 100 types of wipes. The Chyron IV has 100 new software fonts and the ability to interface with a variety of powerful election reporting systems.

Dubner Computer (3110) will add to both ends of its CG line

with the 5K low-cost, full featured character generator and the 30K dual-channel character generator with antialiased fonts. The established 10K and 20K CGs, also with antialiased fonts, will be on hand to complete the line.

Other high-end, antialiased character generation systems will be featured by Aston (223) and Quantel (3171).

Quanta (3128) will have several

new CG products, including the Microgen Plus, which has double the horizontal resolution of the previously shown Microgen. Also new will be the QCG-34 and QCG-38, which offer four and eight faces respectively, along with instant sizing, real-time operation, excellent resolution, and ease of operation.

Laird Telemedia (3474) will introduce a full range of add-on options to its popular Model 1500 character generator, including a high-resolution paint system with 35 ns resolution and 65,000 colors, a direct access keyboard, a 20 Mbyte hard disk for storage of up to 16,000 pages of information, a color encoder with black burst generator, and a keyer/fader. Also new will be the Model 1500-S, a Spanish-language version of the 1500.

3M (3120) will display its established line of CGs, including the D-5000, D-3600, and D-1512.

Still stores

The number and variety of still stores keeps increasing, and this year's NAB will see several introductions that challenge the general conception of still storage. Imageering Laser Disk Systems (235), a company new to NAB, will unveil a product called the ICMS Paintstore, described as a still-image management system based on optical videodiscs. It allows the user to capture, paint, compose, and catalog up to 8,000 600-line NTSC digital still images—expandable to 4.5 million images with the 50-disk Writeable Disk Auto Changer.

The system offers a surprising array of effects, animation, and character generation. Also new is the DRAW photo library system, a 600-line, 8000-frame digital optical disk (also expandable to 4.5 million images) that allows the user to capture, preserve, catalog, search, retrieve, and reproduce still photo images.

Harris Corp.'s (3136) IRIS still store system will have two new add-ons designed for networking applications. I-NET enables storage sharing between systems, while I-MAC permits networking



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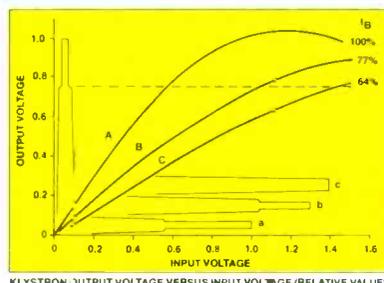
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of up to four IRIS-II systems with expansion to 32 drives and a storage capacity of 86,000 stills on line using 800 MV drives.

Leitch Video (3559) plans to introduce a digital slide store system, the DSS-3100N, which uses an IBM AT personal computer with SCSI interface.

Dubner (3110) will have a new still/slide store system, the SST-4, with two channels, composite digital video, and four-field capability.

The Slide File, Rank Cintel's (3066) still store system, will be enhanced with dual picture display and transmission capability. The Slide File/Art File system, which combines 500,000-slide storage capacity with paint system features, will also be shown.

Weather systems

Today's weather graphics systems, unlike the stripped-down units of the past, are complete paint systems with the ability to

process weather data. Kavouras (2657), for example, will introduce the AP Series, a sophisticated art/paint package for the Triton weather graphics and animation system. The AP is compatible with all Triton models. Other new items of meteorological interest will be the Radac 2000 color weather radar receiver and new Surecast weather maps.

ColorGraphics, which got its start in weather systems, will bring its latest advance—the LiveLine V 32-bit-per-pixel, full-featured graphics system. The LiveLine V has all the paint features of the ArtStar line, plus the ability to interface with ESD, Accu-Weather, WSI, or Weather Central. In addition, a new IBM PC AT-based weather system, the LiveLine PC, will be unveiled. The existing LiveLine IVA has been enhanced with cel animation and expanded satellite looping options, plus a new user interface and Ethernet LAN option.

Other weather system and information suppliers at NAB will include Alden (2759), Integrated Technologies (2610), ESD (2787), and Accu-Weather (2529).

Postproduction

Have random-access, videodisk-based editors finally come into their own? That question is bound to be on many editors' minds as they wait for the NAB exhibit hall to open on March 29. While the conception is brilliant—offering lightning-fast, streamlined, "intuitive" editing—the execution has been held back by economic problems, mainly the cost of disk mastering. At \$300 or so a half-hour disk, with several copies of each needed to ensure rapid access to any frame, the cost has been prohibitive for most applications.

Evidence that things are about to change was abundant at last fall's SMPTE, where two major players—CMX and Paltex—intro-

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duced disk-based systems. With the price of disk mastering rumored to be on the way down, perhaps this will be the push needed to get random access moving.

The entry from CMX (3232), the CMX 6000, is a flexible, full-featured off-line editing system designed to appeal to the film community, among others. It's CMX's first system designed expressly for off-line work. Besides its disk-based technology, the other exciting thing about the 6000 is its storage medium. No more eight-inch floppy disks: the 6000 uses higher-capacity 3 1/2-inch disk drives for EDL storage. An add-on 3 1/2-inch drive-on-a-card will be offered for CMX's on-line editors. In addition, the 6000 scraps the traditional computer-style keyboard for a streamlined dedicated keyboard with integral shuttle knob and touchpad.

CMX will also introduce a new low- to mid-range editor, the CMX 100, designed for such applica-

tions as promos and news. This versatile piece of equipment has an integral video switcher and six-fader audio mixer. Of course, look for CMX's full line of large-scale editing systems.

Paltex (3260) will also have a hot new item, the Eddi videodisk-based random-access editor. EDL storage in Eddi is on an internal hard disk drive. This and other developments indicate that the industry is beginning to move beyond the old hardware standard of EDL storage on eight-inch floppies. Eddi outputs its EDL onto a 5 1/4-inch floppy disk for interchange with other editors. The system is configured with Pioneer LaserVision players as source decks, but is also available with VHS players.

Attendees interested in any of the disk-based systems should make sure to visit two related booths: 3M Optical Media Div. (3120) and Optical disk Corp. (2527). Both will describe the cur-

rent state of the art in videodisk mastering.

The other big guns in editing systems will be at NAB in full force. Grass Valley Group (3112) will show the latest refinements on its line of editors, including the 51E, 41, and 31. The 51E demonstrated limited direct control of the Kaleidoscope digital effects system at SMPTE, so be sure not to miss it at NAB.

Ampex (3108) will premier a new turbo kit for its ACE editing systems, designed to shorten response time to operator commands and EDL functions. A new software release, V. 3.1, has advances in macro functions and list manipulation. Also, check out the new switcher panel memory control, which gives ACE access to all information of the panel memory registers of Ampex AVC switchers.

Convergence Corp. (3252), now a subsidiary of EECO, will display its newly augmented product line, including the EMME high-end,

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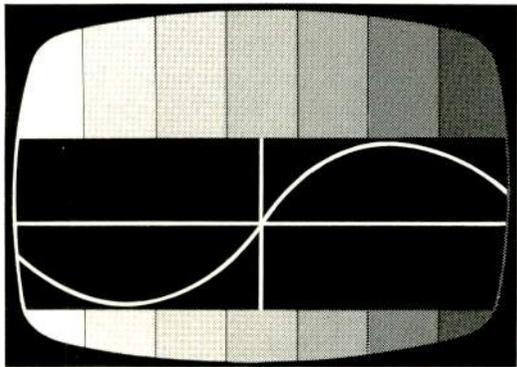
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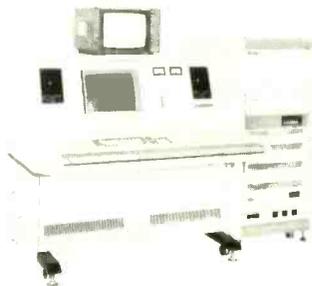
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eight-VTR edit controller; the ECS-1000, a six-machine controller with 1000 lines of EDL memory, list management, and other advanced features all in one box; the ECS-205, top of the 200 Series, with control of up to eight machines and full list management; and the IVES, Super 90, and ECS-195 on the low- to mid-range. EECO time code products will also be on view.

Sony (3100) will have a new expandable editing system, the BVE-9000. Visit the booth for details on this and Sony's full line of editing systems.

Other hot items on the NAB floor will include the TouchVision system from BHP (2795). Designed for "nonlinear" editing, the product (formerly called EnVision) simulates random access with a bank of 3/4-inch or VHS VCRs, each with identical program material. The half-inch version is new for NAB. Meanwhile, the Alta Group (2502) will intro-

duce Centaurus, a dual-channel TBC/frame synchronizer for A/B roll editing. An optional plug-in still-store module can store up to 50 video pictures per disk pack.



The Asaca/Shibasoku ADR-5000 is a magneto-optical video disk recorder that inputs signals in digital form.

Personal computers are popping up everywhere in broadcasting these days, and editing is no exception. One of the most interesting products in this area is the CED from Calaway Engineering

(149). It is available in four- and six-machine versions, both of which run on IBM PC/XT or compatible hardware.

Comprehensive Video Supply (3593) will have a new version of its Edit Lister, a software package turns the PC into an outboard EDL manager for any edit controller.

Amtel Systems (2820) will introduce the Transform-1 post-production management system, seen first at SMPTE. The product is designed to allow programs shot on film for film release to be edited on conventional videotape editing controllers. Amtel will also have its complete line of time code equipment.

Telecines

Rank Cintel (3066) plans a major exhibit of its new digital add-on for the Enhanced MK IIIC flying spot telecine. A preprogramming system for the ADS 1 CCD telecine, which will also be displayed with the new Slide

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File/Art File demonstrating the 500,000 slide capacity library system, and 4:2:2 film to digital tape. Also Amigo II telecine automation system with Kameleon software will be on exhibit.

BTS (3140), too will demonstrate CCD technology with the FDL-60 telecine. Also, on the cine side a film reproduction programmer, the FRP-60, and new grain reducer, FDGR-961B are in the

plans for the show. RTI (3386) has a brand new inspection and editing system for 16 mm film with totally electronic detection system, the TV-2000. And A.F. Associates (3170) is expected to display the Marconi solid state telecine.

Newsroom computers

Dynatech Newstar (3128) has been one of the companies that

not only survived the shakeout of newsroom computers in recent years, but flourished with innovative introductions for the broadcast marketplace. New to this year's show will be the Discovery entry-level system. Also new is a script and tape archive library system that can be run on a PC AT.

In addition, new version 4 software will be offered with lineup enhancements. Expanding its capabilities to include the other aspects of the broadcast plant brings the new Betacart interface, a new teleprompter, and a radio studio monitor which is software and logic in a Newstar terminal providing a smooth scroll, for reading script right off the screen.

The other major player is Basys (2913), which will go head to head with the competition upon introduction of its new System I. It is designed for smaller newsrooms and is based on 80286 technology, offering redundant hardware and supports a variety of standard protocols as well as Ethernet links, leased lines, and satellite feeds. Also on hand will be the Archive System for storing and retrieving scripts, tape/slide/film still store records and background files and includes full text search facilities.

Other newsroom systems are available from Jefferson Pilot Data Services (3204) which has recently merged with Data Communications offering the BIAS system for newsroom computing.

Routing and master control switchers

Routing and master control switching are inevitably affected by changes happening in other areas of broadcast technology, and this is clearly reflected in this year's NAB. BTS (3140), the joint company of Bosch and Philips, will include its full line of systems for master control switching and distribution switching at the convention, which is the first NAB for the company under its new name. Grass Valley Group (3112) will show its new Ten-20 and 20-Ten routing switchers, which are available in a variety of configu-



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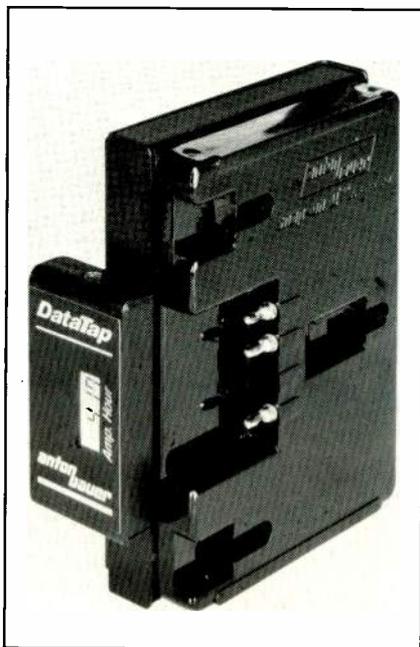
rations—including component video. From their established product line, GVG will exhibit the 1600-4S master control switcher with the M200 automation system, and the Horizon and Ten-X routing switcher systems.

Dynair Electronics (3409) will introduce its new Dynasty family of routing switchers, consisting of mix and match components with bandwidths of 20, 40, 60 and 100 MHz to allow for present and future requirements, including component video, HDTV, and graphics. The Series 10 and 1600 switching systems will be on display, along with the Series 1500 and Series 5300 distribution equipment and Dynair's machine control system, which is ESBUS-compatible, with digital switching matrix.

At the 3M booth (3120) the new 3M 324 master control switcher will be unveiled, and the versatile 3M Series H routing switchers will be shown as well. New this year from Utah Scientific (3128) is their new Serial Machine Control System, the SMC-1, incorporating the Dynabus high-speed communications network. Also new is an updated master control switcher with expanded audio facilities and SAP channel operation. It will be displayed, along with the full line of Utah Scientific routing switchers. Datatek (3547) will introduce a new video/stereo audio routing switcher, and show such established products as its machine control systems, video and audio distribution amplifiers, video/audio routing switchers, and identification for source equipment.

Central Dynamics (3080) will exhibit its routing switcher and distribution product lines, including the SDS-2 distribution system. At BSM Broadcast Systems (2668) the product line will include the Modula and Mini Modula audio/video routing switcher systems, the ADA110DMT 1x10 audio DAs, VDA424 2x12 video DAs, ARS120 10x1 audio routing switcher, and the VRS230 10x1 video routing switcher.

Alamar Electronics (3561) will demonstrate the RCMP-5 remote control panel for use with integrated SMPTE /EBU network controlling VTRs, switchers, and character generators. Crosspoint Latch (3533) will show its 6150BK master control switcher and Model 6116 component switcher. Intergroup Video Systems (3312) will show its 8000 series master control switchers and 1100 series routing switchers, and Image Video, Ltd. (2636) will introduce its new Model 9400 RGB (Y) routing switcher, which is fully self-contained, and includes a built-in power supply. Items from the established line will include the 9600 high-density routing switcher; 8010 and 8020 master control switchers; 6200 broadcast routing switcher; and the 6010 and 6030 10x1 self-con-



Anton/Bauer's DataTrap measures battery power consumption, and is one of many products the company will show at the NAB.

tained routing switchers.

More new products will be shown in this product area from Omicron Video (2661), including the Model 470 12 volt DC-powered video/audio signal distribution system, and the Model 551-5x1 component video routing switcher. Omicron will also

show its full line of video and audio DA's.

Power

Batteries are improving year by year, even though some in the industry claim batteries haven't changed in the last 100 years. The seemingly paradoxical nature of the statement comes from innovations happening now that allow present users to stretch the capabilities of the same basic method of producing power. Longer life, higher power output, less memory retention in Nicads, and microprocessor advancements in battery chargers are among the things to look for at the show.

Anton/Bauer (2600) will preview the new Lifesaver MP-4 and MP-8 microprocessor series of charging/diagnostic evaluators for Nicad batteries as well as the new Snap-On gold battery mounting bracket. The full line of power products will be on display including chargers and compact camera CCUs.

Long a force in power systems, Perrott (2733) will reveal new products at its demonstration, while showing a full range of Nicad, silver zinc, and lead acid power systems in clip-on or belt styles. Single or multiple, fast or overnight minichargers and lighting systems will also be on hand.

Paco (2718) will show its new KD-11 Nicad battery pack fast charger, designed for DP-11 packs, a replacement for the Sony NP-1. In addition, its four channel dememorizer/fast charger will be demonstrated. PAG America (2708) is bringing a new family of batteries, camera brackets and chargers incorporating its mounting system, the PAG-lok.

Pro Battery (2761) will be exhibiting its line of 14.4 V, 13.2 V and 12 V batteries with customized laser engraved front plates. Alexander (tktk) will introduce new battery belts available in four and seven amps, 12 and 32 V. Also exhibiting ENG batteries for cameras and recorders, battery analyzers, and battery chargers.

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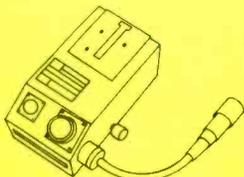
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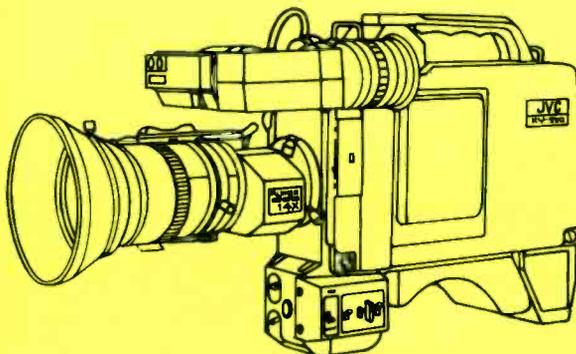
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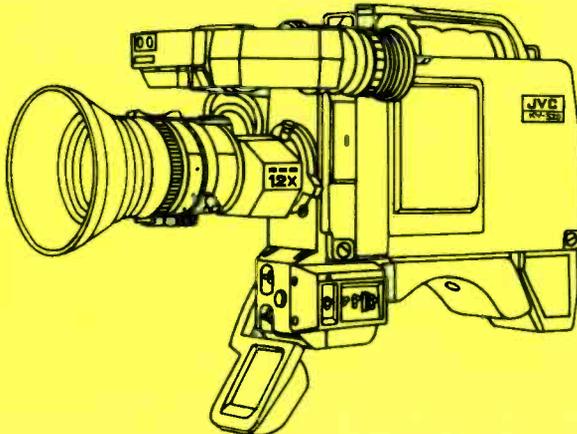
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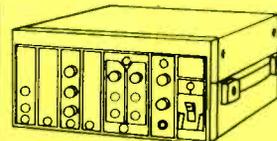
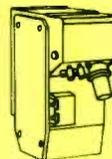
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WHAT'S hot

Audio quality will continue to be a high priority in broadcast technology this year. With the growing popularity of MTS, the anticipated resurgence of FMX, and continued efforts to resolve the AM stereo situation, 1987 indeed promises to be an exciting year on all fronts.

The audio hardware—and software—exhibited at NAB '87 will mirror the prevailing emphases on quality, performance, and flexibility in the broadcast environment. The net result is that the audio production process is likely to become simpler and more complex at the same time. Increased availability of RF mics, headsets, and new cases that hold multiple wireless receivers will make life in the studio considerably easier. At the same time, on-air consoles have reached a level of sophistication that rivals music recording systems, with greater input handling, programmable functions, and state-of-the-art automation.

The omnipresence of digital technology at NAB '87 will be hard to miss. Both the PD and DASH digital ATR formats will be duly represented, and the slew of new hard disk-based digital audio storage systems will provide some intriguing high-tech approaches to spot scheduling and maintenance. Meanwhile, the compact disk is more popular than ever; new professional CD players feature expanded disk capacities and control capabilities and virtually all of the major music syndicators now offer libraries on CD.

RADIO/AUDIO

Computer-controlled audio editors have become audio-for-video essentials with added flexibility provided by new software and interfacing devices, while audio processors continue to meet increased demands for dual-channel sound in both TV and radio applications.

Station communications systems are similarly keeping pace with the changes in the broadcast environment, offering improved sound quality and expandable configurations.

Audio consoles/editors

The growing demand for quality sound in today's broadcasting industry has put the audio console centerstage in most on-air and post-production facilities. Not surprisingly, the numerous console introductions at this NAB show reflect the need for high-performance mixing systems in all phases of the broadcast spectrum.

Modular designs that allow users to customize their production capabilities are an emerging trend on low- and mid-priced mixing boards, while floppy/hard disk back-up storage for console setups is now featured on many high-end systems. You can also expect to see a greater diversity in the consoles exhibited at this year's show. Whereas most manufacturers tended to concentrate on specific applications for their console dis-



C O N T E N T S

Audio Consoles/Editors	65
Digital Recording ATRs/CD Players/ Cart Decks	70
Audio Production Equipment	74
Noise Reduction/ Processing	78
Radio Syndication	81
Station Automation/ Management/ Programming	82
Intercoms/Telco Interface	84

plays last year, at this NAB you are likely to find post-production systems exhibited alongside of on-air consoles, rackmountable units, and portable mixers.

An innovative approach to audio production can be found in the latest revision of the Series Ten console from Harrison Systems (3412), which incorporates the VGA Ten interactive graphics subsystem for on-screen display and mouse manipulation of console functions. Harrison will also be showing two versions of the Air 7 console, for on-air radio production, the Pro 7 for edit suite installations, and the TV 4 for television and post-production applications.

Meanwhile, Solid State Logic (3560) will unveil a new high-performance studio computer for its consoles that permits entire productions using up to two standard floppy discs to be loaded into high-speed dynamic RAM. The new system also allows for storage of up to 80 floppy disks-worth of information on compact, portable 20 megabyte disk cartridges, each weighing less than a reel of ¼-inch tape. SSL will also be demonstrating its complete line of audio consoles, studio computer systems, and machine control units.

At the same time, Orion Research (2588) will be showing production models of the Orion AMU software-based audio mixing system, designed specifically for television applications. One of the

highlights of the system is ReMem, a recall memory system that can store, recall, and reset full console setups. Other features include capacity for full serial control and editor interface and configurations ranging from 8 to 32 stereo inputs.

Neotek (2782) will debut the Elan mixing console, which is designed for radio, television, and video post-production facilities, and features direct digital interfaces for general purpose interface lines with any video editor, MIDI or SMPTE computer editor, MIDI mute automation, or any standard or custom automation package. It is available with 28 or 36 inputs.

Wheatstone Corp. (2400) will introduce two new consoles at NAB. The MTX-1080 Reinforcement console features programmable muting, four-band sweepable equalization, and eight effects send controls (each with pre, post, and off functions programmable to pre-fader or pre-EQ). Meanwhile, the new SP-5 radio production console is available in four- or eight-track configurations with stereo and mono input modules, four auxiliary send buses, and four to 56 input channels. Also featured at the booth will be the AP500 on-air and production console, the SP-5 stereo production console, and the A-500 on-air console.

At Rupert Neve's booth (3318) demonstrations will be given on a V Series multitrack analog music

recording console with Necam 96 automation. The V Series is available in 36-, 48-, and 60-channel frame sizes and features Neve Format Equalization, eight mono/four stereo auxiliary send buses, and an advanced mix cue system that allows the user to hear the full mix and enables the engineer to manage the monitor mix without affecting the cue balance. Also on display will be a 32-channel 5106 system from Neve's 51 Series and 12- and eight-channel models from the 542 Series.

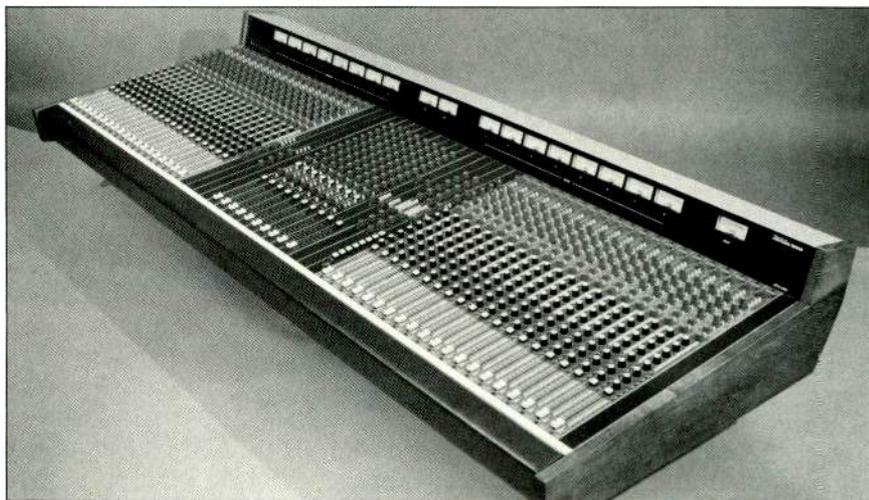
The Assignable '86 broadcast console will be unveiled by Calrec (2825). The console is capable of controlling up to 28 channels and 12 stereo groups and features instant reset and floppy disc backup of system status memories.

Amek (2558) will debut its Classic broadcast/post-production console, with eight mono or stereo subgroup buses, two dedicated stereo groups, 24-track monitoring capability. The new Amek G2520 multitrack mixdown console will also be shown, as well as the APC1000 console for large-scale post production, the BCII broadcast/post-production console system, and the TAC Scorpion, a cost-effective multiple-configuration console now available with stereo line-input modules.

Soundtracs (2454) will show a new FME mixer with a fully modular design available in two main-frame sizes for 22 or 30 modules. A broadcast version of the FMX console for local and community radio applications will also be on display.

From Autogram Corp. (2702) comes the new RTV-12 transformerless console with 12 Penny & Giles slide faders, VCA control, electronic switching, remote controllable channels, and optional interface card for live assist and logging.

RAMSA (3216) will demonstrate its new WR-8428 post-production/recording console, which features 28 mono or stereo input modules, 24-track monitoring capability, stereo and mono outputs, 4 group and matrix outputs, and optional surround sound matrix module. Also on display



Wheatstone's MTX-1080 Reinforcement console reflects the growing sophistication in audio console design.

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will be the WR-8616 post-production/recording console, the WR-500 eight-input remote mixer, WR-5208 and WR-133 eight-input portable or rack-mounted mixer, and the WR-M10 rackmounted mixer with four mic and six line inputs.

A new self-contained, rackmount console featuring six mixing positions, front panel cue speaker and metered level preselect will be debuted by Broadcast Audio Corp. (2615). Also introduced will be a three-frequency headphone EQ option for Series II and IV consoles.

Meanwhile, Arrakis Systems (2742) will unveil the new 10000 Series of deluxe, medium-priced modular audio consoles with extensive production capabilities, available in a variety of mainframe sizes. Modular options include compressor/limiters, equalization, and remote control.

ADM Technology (3266) will introduce two new consoles: the RM1083 rackmount modular 8x3 mixer with eight mic/line inputs, full EQ, and stereo panning, and the RM1168, an audio mix-minus matrix for multiple SNG feeds, which includes eight outputs and 16, 24, 32, or 48 inputs. An improved version of the BCS3643-PC automated stereo television console with audio router interface and the S/TV 24 stereo television console will also be on view.

New from Dorrrough Electronics (2602) will be the Model 700 dual-channel, seven-position audio console, with 15 line inputs and three mic inputs, available in mono or stereo versions.

ATI-Audio Technologies (2508) will debut its Vanguard Series BC12DSL 12-mixer console with dual stereo outputs.

At Ward-Beck's booth (3060), the line of R1000, R1400, and R2200 stereo radio consoles will be featured, as well as the ST Series of stereo TV consoles, which are available in 24-, 36-, and 48-input channel configurations.

The new line of Signature III broadcast consoles will be unveiled by LPB Inc. (3338). Updated versions of the Signature II Series and the Citation and Alpha

Series of broadcast consoles will also be exhibited.

Auditronics (3310) will introduce the new 400 Series audio production console with full 16-track monitoring capability, submaster groups, a flush-mount mainframe with recessed trough and removeable plate for installation of user custom switching, and stereo and mono operation. It is available with 12, 18, or 24 input channels and four or eight outputs. Also on display will be the 200 Series of audio control consoles, the Stationmaster stereo on-air console, and the 310 Series.

Soundcraft (2770) will be showing two new production systems at NAB: the SAC 200 broadcast console and the TS 12 multitrack production console. The SAC 2000 on-air broadcast console, Series 200, and the TS 24 for multitrack production will also be on view.

Howe Technologies Corp. (2832) will exhibit several systems from its current line, including the custom-made, modular 10,000 console; the 9000 Series modular console with linear faders and expandable controls; the expandable 8000 Series console with rotary faders; the 7512A 12-channel console with linear faders; and the 7012A and 7012 12-channel console with rotary faders.

Logitek (2807) will display the Auditorack audio console and its line of Perfectionist consoles. The Westar 8300 film/video production console will be featured Mitsubishi Pro Audio's booth (3530).

PKE International (144) will be featuring the CSC-1 stereo modular radio broadcast console and the MC-200 all-purpose stereo radio console available in eight-, 12-, and 16-channel configurations.

Graham-Patten Systems (2528) will be showing its line of Edit Suite Mixers, including the 608, 612, and 616, along with the optional programmable equalization system. Meanwhile, Teac/Tascam (3416) will unveil its M-600 mixing console with 32 inputs. The M-300 B Series of consoles will also be on display.

For ENG applications, Audio-

Technica (2407) introduces the AT4462, a stereo portable field production mixer with two pannable mono inputs and two true stereo inputs, all transformer-coupled at mic or line level. Likewise, Audio Developments/Portland Instruments (2933) will introduce the 260 portable stereo shoulder-mount mixer with talk back, stereo monitor and four input channels.

Lectrosonics Inc. (2445) will debut the QUADmini, a four-channel highband receiver/mixer for multichannel field use. Pacific Recorders & Engineering (3151) follows suit with its introduction of a compact stereo mixer designed for news, on-air, and remote applications.

At the same time, Connectronics (2403) will introduce the Seck-62 B, a broadcast version of the Seck-62 recording and P.A. portable audio mixing console. A full range of Seck portable audio mixers will also be featured.

Audio editors

Since their debut at NAB '85, microprocessor-based audio editing and synchronization systems have become integral components in the audio production process. But whereas earlier product generations were designed strictly for high-end applications, the trend this year seems to be centered around making the technology affordable with new software packages and interface devices leading off most introductions.

For instance, Nagra Magnetic Recorders (3453) will be demonstrating new RS422 interfacing software for its T-Audio system and the CMX video editor, which enables the CMX to handle audio signals like video. Nagra will also introduce a new interface for the T-Audio and the Rank Cintel flying-spot telecine.

Likewise, Adams-Smith (2495) will be showing a new software package for its high-end 2600 AV audio/video editor, which allows it to accept and generate edit-decision lists for audio-for-video editing. The new Zeta Three synchronizer for audio, video, and

MIDI (Musical Instrument Digital Interface) applications will also be on view. The Zeta Three allows production operations to synch audio recorders to video recorders and permits MIDI to be synched with SMPTE time code. Other featured products include the model 2600 CC compact controller audio-for-video editing system and System 2600 time code and synchronizing modules.

Fostex Corp. (2579) will be exhibiting F.A.M.E. (Fostex Automated Media Editing) software for the Apple IIc and IIe personal computers. Designed as an interface for the company's 4030 synchronizer, F.A.M.E. can also be used with other Fostex products to create turnkey multimedia editing systems. Versions for IBM and Macintosh PCs will be available soon. The 4010 time code generator/editor will also be displayed.

The Version 4 integrated audio editing system with Syncro (for IBM PCs) will be demonstrated by Soundmaster International (2780). In addition to offering simultaneous synchronization of all international time codes, Version 4 features numerous programmable closures and variable speed lock of one-third to three times normal play speed.

Alpha Audio (100-102) will introduce a new digital audio storage interface for The Boss 8400 automated audio editor. The Boss itself will be featured by the company's Automation Div.

Allied Broadcast (3414) will show Media Touch, a new computerized, touchscreen system designed to control any or all parts of a broadcast operation, radio or TV. Meanwhile, Teac/Tascam (3416) will be introducing the ES 50/501 SMPTE time code-based synchronizer with subframe accuracy.

The new ADU-11 audio synchronizer will be featured at McCurdy Radio Industries' booth (3028), along with a new digital audio storage system, as well as established products, including an audio production/edit mixer with serial interface, audio distribution amps, and the SS-8800

Series of on-air and production consoles.

Timeline (2684) will exhibit the Link SAL stand-alone, chase lock synchronizer and the Link VSI, a video interface that allows an edit controller to control an audio machine as it would a video machine for layback and audio edits.

Lastly, Cipher Digital (2605) will unveil both an audio editing system and a VTR synchronizer/emulator at NAB '87. The established line of time code readers and generators will be displayed, along with the Shadow II synchronizer controller, Softouch audio editing system, and Shadowpad.

Digital recording/ ATRs/cart decks

Audio recorders and storage systems will rank high among the highlights at NAB '87. A surprising development here is the strong showing of hard disk-based digital audio storage systems, with several new products making their professional debut.

Mitsubishi International Corp. (2476), for example, will introduce the new DAS-2 digital audio storage system by NTI (Nippon Television Industry Corporation), available in four frequency ranges, three modes of operation (automatic, semiautomatic, or manual), mono and/or stereo playback.

Meanwhile, Compusonics Corp. (2533) will unveil the DSP 1000

digital audio disk recorder, a computer that uses optical disk technology for recording high-fidelity digital audio. Also featured will be the DSP 1500 digital disk broadcast spot recorder/player, which uses a floppy disk cartridge and is designed with the look and feel of traditional cart machines.

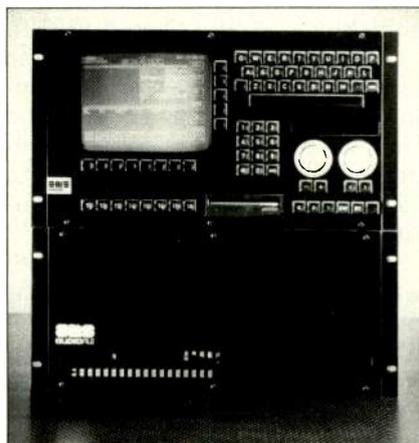
A familiar name in video, For-A Corp. of America (3599), enters the digital domain with the Sirius 100 digital audio memory, featuring up to 1000 minutes of audio storage with instant access by up to eight remotes.

Advanced Music Systems (2825) will be highlighting its updated AudioFile hard disk-based digital recording system with expanded storage capacity and new software that provides for sync recording, punch in/punch out, remote machine control, digital interfacing with other PCM equipment, and other features that were previously unavailable. AMS will also display their full range of digital processors.

The CMI (Computer Musical Instrument) Series III, a complete software-based integrated digital audio production system, will be demonstrated in audio post-production applications at Fairlight Instrument's booth (215).

MEI Electronics/Microprobe (2620) will show the Digisound-E economy series of hard disk-based, digital audio storage systems for satellite and tape broadcasts. Other products on display will include the Satmaster satellite music programmer, the Digisound audio storage unit, the Model 100MP programmer for tape music formats, and a digital PCM tone generator.

At the same time, New England Digital (228) will be demonstrating the Synclavier digital audio system, a comprehensive workstation for composing, recording, editing, performing, and music printing. New system capabilities will include Synclavier's Direct-to-Disk digital multitrack recording option; Sample-to-Memory, offering stereo sampling capability of 100 kHz per channel; and Engraving Quality Music Printing, a music



The updated AudioFile from AMS features expanded digital storage capacity and new software capabilities.

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ATRs/CD players

With audio quality commanding priority status throughout the broadcast industry, digital audio recorders and CD players are certain to be hot items this year. Nevertheless, it is clear that analog technology is far from obsolete.

A new analog recorder that is guaranteed to raise some eyebrows at NAB '87 is the A820 multitrack recorder from Studer Revox America (3048). The A820 is available in 8-, 16-, or 24-channel configurations with over 40 programmable features, automatic alignment, and fully integrated Dolby SR processing available as an option. Studer will also unveil a production version of its A807 two-track recorder with microprocessor control of and full editing facilities. The line of A800 and A80 multitrack recorders will be on hand, as well as the PR99 and the B77 compact recorders, Philips/Studer Revox CD players, and the line professional cassette decks.

Meanwhile, the latest PD format 32-track digital recorder, the DTR-900, will be in the spotlight at Otari's booth (3246). Also on view will be the CTM-10 NAB-style cart machine; MX-80 recorder available in 32-, 24- and expandable 24-track configurations; and a full line of mastering and multitrack recorders and cassette duplicators.

Mitsubishi Pro Audio (3530) will show its full PD digital family, including the X-850 32-track digital recorder, X-400 16-track recorder, X-86 2-track recorder, XE-2 digital editor and the DIF-32 an AES/EBU standard interface.

Likewise, DASH supporter Sony Pro Audio (3100) will exhibit its complete line of digital audio products, including the PCM-3324 24-track digital ATR; the new PCM-3401 twin-speed, two-track digital recorder; the PCM-1630 digital audio processor; and the line of professional



Studer's A820 multitrack analog recorder is available with built-in Dolby SR processing for digital-quality audio.

CD players.

Schaffer World Communications (3353) will introduce a random access CD player with 60-disk capacity for fully automated stations or live assists.

Allied Broadcast (3414) will show the Audiometrics AMCDs 1000A 100-capacity compact disc player.

AEG (2700) will display its M-20 and M-21 analog open reel decks available in two-track and two-track with center track time code facilities. The M-15A 32-track recorder will also be shown.

Teac/Tascam (3416) will introduce the ATR 80 two-inch multitrack professional recorder available in 24- and 32-track configurations. Also debuted will be the CD 501 rack mounted CD player for radio use, and the LV-200A, a laser disc-based recordable system for video or audio applications in archival storage, reference, production, or distribution.

Nakamichi U.S.A. (2456) will show the MR-1 discrete head professional cassette deck and the MR-2 two-head professional cassette deck with silent mechanism transport, wired remote input and output, and Dolby-B and Dolby-C noise reduction.

Multi-Track Magnetics (2801) will introduce the new D-108/DCS 10x-speed recorder/reproducer and R-104B/DCS portable transfer machine. The D2 Series of re-

recorders and reproducers from Rangertone will also be on display.

Cart machines

The venerable tape cartridge machine is a popular staple at every NAB.

At this year's show, Fidelipac (3092) will unveil the production version of its Dynamax CTR30 Series three-deck NAB cartridge recorder/reproducer, available in both mono and stereo configurations with built-in record electronics standard in the line. All units record and detect 3-cue tones and feature a built-in audio switcher and mixer. The company will also introduce a new tape cartridge loaded with a new cobalt-based back-lubricated tape that offers a 2db improvement in headroom between 8 and 12 kHz.

The complete line of Dynamax CTR100 and CTR10 recorders and players will be on display, as well as the ESD10 eraser/splice detector, Dynamax back-lubricated 1/4-inch cartridge tape, Master Cart Tape cartridges, on-air and recording warning lights, cartridge racks, and accessories.

At the International Tape-tronics Corp./3M booth (3052), the DCM-1 Dynamic Cartridge Monitor will make its NAB debut. It is designed to monitor cartridge performance and indicate when the cart is nearing the failure point so it can be pulled from service. The full line of cart machine equipment will be displayed, including the Performance System, the Economy System, the 99B series with ELSA cartridge preparation system, the Delta series, and the Omega series. Also on view will be the ESL V eraser/splice locator, the FB-1 telephone answering interface, and the ScotchCart II broadcast cartridge.

Otari (3246) will introduce its new CTM-10 NAB-style cart machine.

Pacific Recorders & Engineering (3151) will introduce the new Micromax stereo cart recorder available with Maxtrax or NAB heads. Also showing the Tomcat and Micromax cart machine lines. Samples of studio cabinetry and

“Here’s why Blane Webster bought Auditronics for WLAK–FM”



Blane Webster,
Chief Engineer, WLAK-FM



“**W**hen I prepared the budget for our new facilities on Chicago’s Michigan Avenue, I could have included any console I wanted, be it Ward-Beck, Neve, you name it. So I looked at and listened to everything the industry had to offer, from the Harrison to the Harris Medalist, and I bought Auditronics.

I bought the Auditronics 200 primarily for its audio quality, by which I mean its waveform integrity, freedom from distortion and low noise floor. The quality of its sound is remarkably transparent. I think Auditronics’ VCA technology is really good too, maybe the best on the market.

I also looked for reliability. The console’s the most important link in the studio chain because it’s on the air all the time. We just can’t afford a failure, and I recalled that our old Auditronics console at Sears Tower never had an on-air failure.

Features were important too, like the modular concept that lets me pull a module out and pop another one in almost

as fast as making an Indianapolis pit stop. If I need another mike channel or cart machine channel, I’ve got it right here on the shelf for immediate use. The layout of the Auditronics 200 is almost self-explanatory so our on-air people can use it without making mistakes, and the 200 is rugged enough to withstand the jocks’ abuse and coffee spills.

One of the things that sets WLAK apart is that we’re the number 1 adult contemporary station in the Chicago market, and to us being number 1 means more than just winning in the ratings. It means being the best both on and off-the-air. This includes the kind of equipment we buy and the way we use it. We’re a winner and we’re proud of it.”

If you’d like to know more about why Viacom’s Blane Webster specifies Auditronics consoles for *both* on-air and production, call 800-638-0977 toll free, for complete information and a demonstration near you.

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systems work will be displayed, with all products fully operational to allow for studio-type demonstrations.

IGM Communications (3378) will demonstrate the IGM-EC and IGM-SC program automation controllers, both powered by IBM or compatible PCs. Also on view will be the GoCart 24-tray cartridge playback machine and the InstaCart 48-tray instant access playback machine. Meanwhile, Broadcast Electronics (3226) will exhibit the 2100 Series, 3000 Series, 5300 Series, 5400 Series, and 5500 Series tape cartridge machines. There will also be a product announcement at the booth.

Audio production equipment

This year's assortment of audio production gear offers broadcasters unparalleled performance and flexibility.

Nowhere is this more evident than in the introduction of the Opus workstation from Lexicon Inc. (133, 136). The Opus is a fully integrated, random access digital workstation combining recording, nondestructive editing, time alignment, mixing, panning, overdubbing, and signal processing capabilities all in the digital domain. Up to eight hours of instantly accessible digital audio can be stored on the Opus's hard disks. Established products on

display will include the Lexicon 2400 stereo audio time compressor/expander with SMPTE time code, programmable relays, and remote capabilities; the Lexicon 480L digital effects system; the Model 1300 digital audio delay; the 200 digital stereo reverb; and the PCM70 digital effects processor/reverb unit.

Meanwhile, PKE International (144) will be showing the DP-5 intelligent remote-site control and interrogation system, which includes such features as 24-hour monitoring and control, auto after-hours technician call-up, and auto log with visual and hard copy. Also on view will be the OB1 lightweight and compact two-channel mobile amplifier with shoulder strap-mounted battery.

NAB '87 will similarly see the unveiling of several new headphones and accessories. For instance, Sennheiser (2664) will be introducing the RS-2012 six pack wireless case, which holds up to six of the company's ultra-miniature body pack receivers. Also new will be the MKE-42PU goose-neck cardioid mic with built-in 48V phantom adapter for console and podium use. A prototype of a new recording-grade monitor will also be on display.

Meanwhile, Howe Technologies (formerly Howe Audio) (2832) will debut the HDP 1000 external stereo headphone amp, with two bal-

anced inputs and two 200 ohm headphone outputs, each with independent volume control and switch-controlled signal matrix.

R-Columbia Products (2672) will introduce the CC-777 director headphones with two built-in mics that allow directors to control two intercom systems simultaneously. Also making their debut will be the ultralight SB-777 (double-ear) and SB/700/2 (single-ear) sportscaster headphones with an on-air-quality, noise-canceling electret condenser mic; one-ounce, single-ear and double-ear amplified cameraman headphone; double- and single-ear cameraman's headphone for new cameras equipped with four-circuit mini plugs; switchable five-channel wireless headphones; and the new TR-50/B wireless-to-wired base station interface.

For playback in the studio, Anchor Audio (2432) will be showing self-powered monitor speakers as well as battery-powered sound systems and intercom systems.

Bryston Ltd. (2406) will debut four models of a rack mounted speaker crossover for splitting signals among the different drivers in speaker systems. The models, with two-way stereo and three-way mono capability, are: The 50 watt 2B PBX; 100 watt 3B PBX; the 250 watt 4B PBX; and the 500 watt mono 6B PBX.

Featured products at the JBL/UREI booth (2727) include the JBL/UREI power amplifiers and signal processing devices, UREI Time-Align studio monitors, and JBL studio monitors.

Meanwhile, RAMSA (3216) will be showing the WS-A10 compact monitor speaker, WS-A70 near-field monitor speaker, and WS-A240 subwoofer.

Broadcast Supply West (2743) will introduce the Radix line of electronic components, including the TP500 phono preamp, DA1600 distribution amp, and the TM500 studio timer. The Pro Base III turntable base for Technics turntables will also be introduced.

Microphones

Microphones will be in plentiful supply at this NAB show. Among



Shure's SM89 condenser shotgun microphone is the company's latest offering for ENG applications.

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RADIO/AUDIO

the intriguing new entries is Samson's (2784) Broadcast STD Series of true diversity, fully synthesized wireless microphones featuring dbx as an integral companding system. Also new will be handheld and lavalier microphones and new instrument systems.

Telex (3370) will debut the FM-4, a new FM diversity wireless microphone receiver with four-channel capability, and the LM300 unidirectional lapel mic system with separate power supply. The full line of Audiocom intercom systems, professional headsets, wireless and sound reinforcement microphones will be demonstrated along with the personal PA system, ENG wireless system, and audio tape duplicators.

Shure Brothers (3320) will be introducing the FP51 gated compressor mixer and variations on the wireless microphone system. Also new will be the SM 89 shotgun condenser mic and broadcast phono cartridges. The complete line of professional mics and circuitry products will be shown, including the field production line.

Nady Systems (2902) will debut the new 501 VR VHF wireless receiver for video production and stage use. Also showing the 601/701 VHF and 501 VHF wireless systems, and the Nady 49 MHz short-range FM communicators, including the Model PRC-1X (bodypack), PRC-2X (integral headset), PRC-3X (full duplex body pack), and PRC-4H (handheld unit).

Micron Audio Products (2752) will show a complete line of wireless microphone systems for ENG, film, studio, and theater, including the CNS-500 series with complimentary noise suppression and the MDS-2 modular multichannel space diversity system.

New from Lectrosonics (2445) will be the H185 highband plug-in transmitter for hand-held microphones, and the QUADmini, a four-channel highband receiver/mixer for multichannel field use. Another new introduction will be the PRO-185D, a fixed-frequency highband diversity wireless microphone system for field and studio use, which can be powered by

either 12 volts DC or 110 volts AC. The PRO-185D's M185 transmitter and R185 receiver are housed in solid machined aluminum casings. Another new product is the PROMini miniature wireless microphone system, featuring a pocket-size highband all-aluminum receiver. Other featured products include the MAXI-Mouse portable audio monitor for field use (such as lip-synch playback), and the full line of studio and field wireless microphone systems in single and multiple-channel configurations.

Meanwhile, Crown International (2927) will show four new microphones: the GLM-100D and GLM-200D broadcast dual lavaliers, and the GLM-100/ENG and GLM-200/ENG for field use. Both types are available in directional or omnidirectional models.

HM Electronics (2619) will introduce two new cabled microphones and the FR-200A Field Pac, which holds up to six of the company's wireless microphone receivers. The company's lines of wireless microphones and intercom systems (both wireless and cabled) will also be on display.

Gotham Audio Corp. (3354) will be showing the new Neumann RSM 190 stereo condenser shotgun mic for sports coverage and ENG and the EMT 258 dynamic noise filter. Featured products include EMT 266/277 transient limiters, EMT 938/948 broadcast turntables, Studer A807 ¼-inch tape recorder, Studer A725 professional CD player, and K&H self-powered reference monitor speakers.

New this year from AKG Acoustics (2454) will be the C-522 stereo ENG microphone, an X-Y stereo microphone, and the ADR 68K digital reverb. The full line of AKG mics, headphones, headsets, phono cartridges, stands, digital delays, and reverbs will also be on exhibit.

Cetec Vega (3394) will introduce the Model R-33 Pro Plus miniature portable wireless microphone receiver for ENG, location, or studio. It is small enough to mount on the side of a camera or on the user's belt, and features

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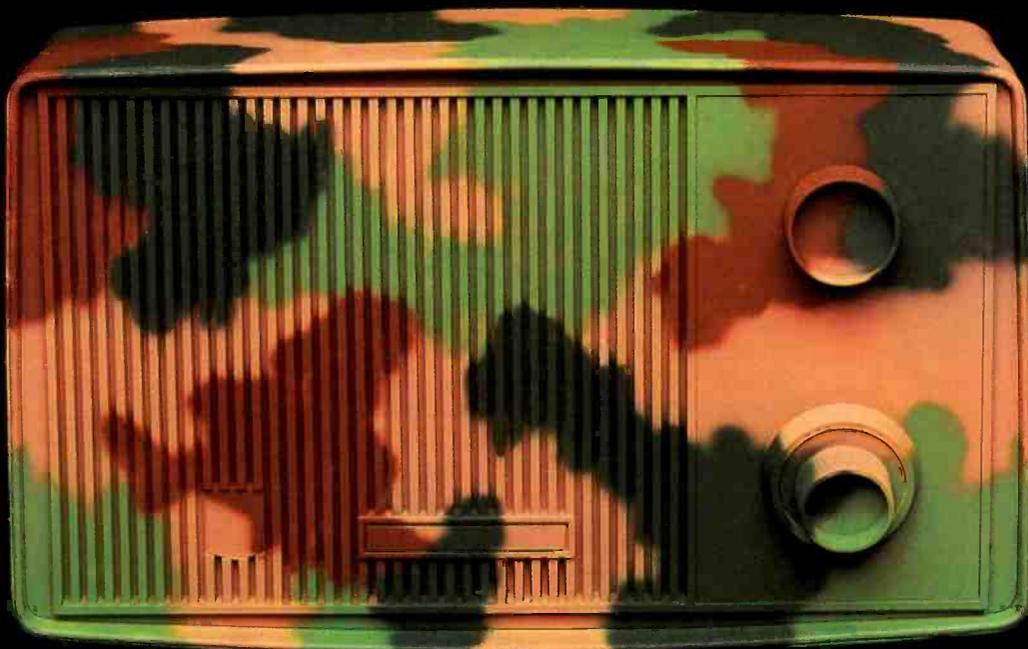
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HANDS-FREE ENG/IFB/TELEPHONE

- Operates From Any Modular Telephone Jack.
- Single or Double-Line Models.
 - Tone or Pulse Dialing.
- 1 Ounce Headphone/Mic.



Exclusive features for ENG/IFB use include a mic mute switch, control for adjusting incoming volume, 3 mic inputs, 3 headphone outputs, ringer circuit for alerting user to incoming calls.

A 1 ounce headphone/mic (with or without headband) is available for "hands-free" telephone operation. Full size circumaural headphones with noise cancelling mics are also available for use in high ambients. Telephone is small, approx. 2" x 4" x 1" and has a clip for attaching to user's belt. Tone or pulse dialing. Single or switchable 2-line models available.

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WHAT'S
hot

RADIO/AUDIO

Dynex II audio processing for high S/N and wide dynamic range and battery operation. The R-33 matches the Dynex II bodypack and hand-held transmitters, including the new T-86 omnidirectional, which is designed for interviews, audience participation, and musical-instrument miking.

Also new is the Traveler and Reporter portable wireless microphone systems, and the Q-Plus wireless intercom system. Other products displayed are the R-42 Pro Plus true dual-diversity wireless microphone receiver, the Pro 1-B bodypack and Pro 1-H hand-held systems, the 66B portable receiver (now with GaAsFET front end), the full line of hand-held transmitters, affordable systems for low-budget ENG and LPTV applications, wireless intercom systems, and a full line of accessories, including the XRS-15 miniature lavalier electret microphone.

Noise reduction/processing

Perhaps the biggest news in noise reduction this year is the arrival of the Spectral Recording (SR) process from Dolby Laboratories (2705). Dolby SR can be used with any analog recording or transmission medium to provide a dynamic range and S/N ratio rivaling that of digital recordings. The full line of Dolby spectral recording units for both audio and video tape recorders will be shown, as well as the Dolby "C" type noise-reduction processor designed for use with 3/4-inch U-matic VCRs, microwave STLs, and other applications.

Meanwhile, dbx (2740) will show the new dbx Professional Real-Time Analysis system, which can measure the frequency response of music in broadcast transmissions or live concerts (while an audience is present). Also shown will be the new dbx 150X type I encode/decode noise-reduction system for audio analog tape machines, as well as the dbx line of compressor/limiters, modular signal processors, noise-reduction systems, and OEM products.

Valley International (2747) will

CLASSIC SIMPLICITY

To make something that works – and works well – is craftsmanship. To create a product which redefines its purpose and yet retains an essential simplicity is a work of art.

There are many intercoms on the market... and then there is the McCurdy Digital Intercom.

To say it works well is a classic understatement. To say it's ahead of its time is faint praise indeed.

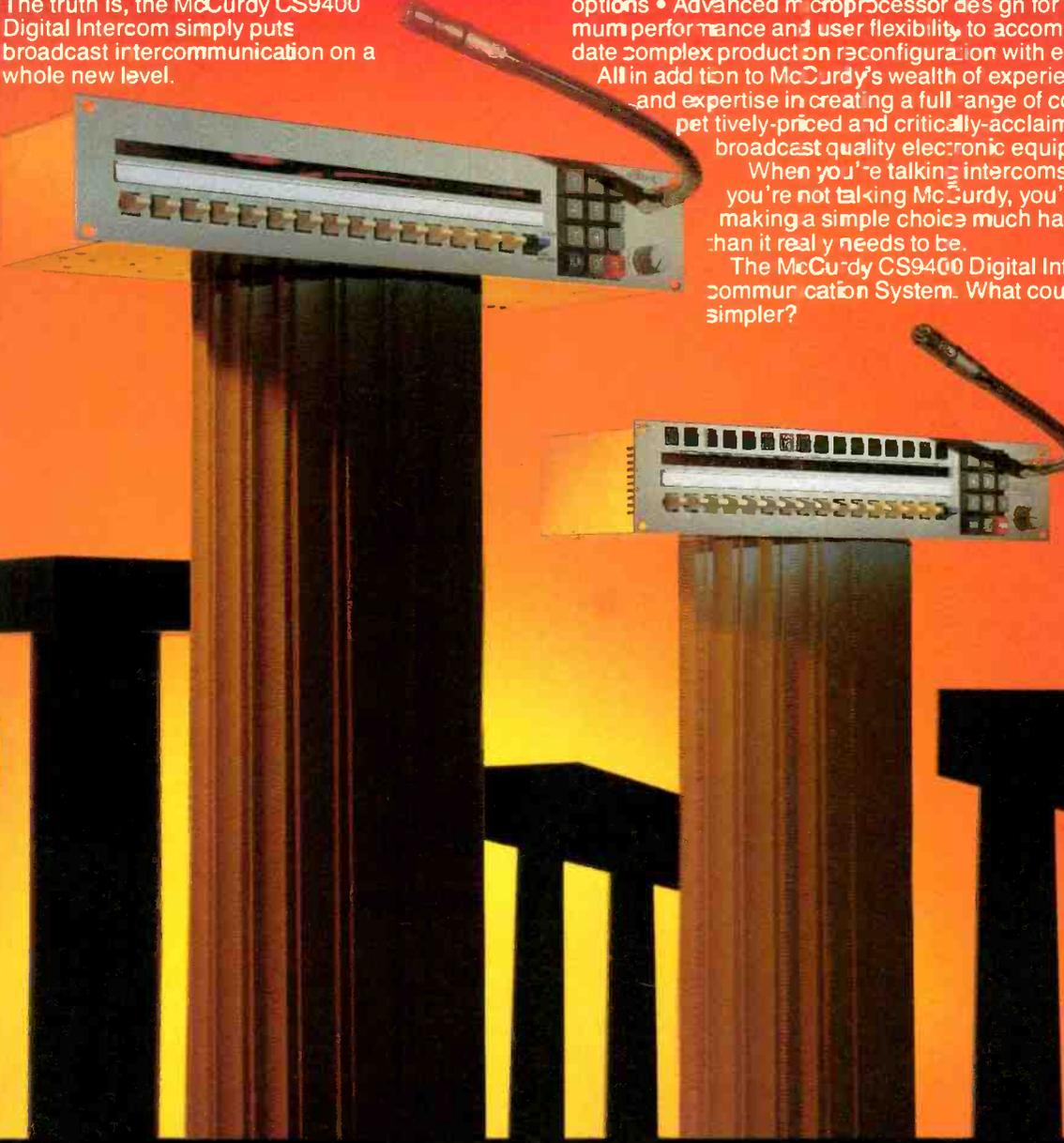
The truth is, the McCurdy CS9400 Digital Intercom simply puts broadcast intercommunication on a whole new level.

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When you'd give
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for an extra foot...

A-T
gives you
a hand!

The new AT835.

Now there's a new way to reach out and hear. The Audio-Technica AT835 Condenser Line + Gradient Microphone. It's barely longer than a legal pad, but it zeroes in on the sound you want to hear, while blocking out noise from the sides and rear.

Baby Brother

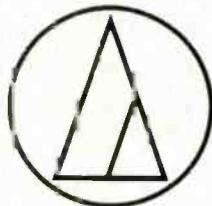
The new AT835 is 4 inches shorter than our famed AT815a and its remote-powered brother, the AT315R. Yet its performance in the field is remarkably close. The major difference is a slightly wider (60°) acceptance angle at higher frequencies. Credit a sophisticated "Fixed-Charge" element for the truly impressive sound and excellent directional control. The AT835 short "shotgun" fits in whether you are recording "actualities" for the evening news, picking up dialogue for film or A/V, or eavesdropping from the sidelines.

With Guts

Our FET impedance converter is super quiet, and runs for months on a single "AA" flashlight cell. The balanced, phased output matches any remote or studio input from 150 to 1000 Ohms without problems. And the AT835, like all A-T condensers, is built to take real punishment. Even so, it weighs just 7½ ounces for easy fshpoling or extended hand-held use.

If your goal is better control of your sound at moderate cost, your Audio-Technica sound specialist has a brand new answer. The AT835.

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debut the AUTOGATE, a sophisticated noise gate/expander with proprietary Auto Slope circuitry that automatically alters the gating/expansion slope as dictated by program content. Two new modules for any Valley 800 series rack mount enclosure will also be introduced: The 817 COMANDER module features a compressor section with an interactive expander to eliminate residual noise and an AUTO mode that places the compressor attack and release controls in a program dependent mode. The single-channel 816 LEVELLER module provides precise audio level control to prevent tape saturation and speaker overloads.

Processing equipment

Orban Associates, Inc. (3444) will debut several new products at NAB '87, including the XT2 six-band limiter accessory to the 8100A Optimod-FM for increasing loudness without audible side-effects, improvement of consistency from source to source, and other features; the Orban 9100B Optimod-AM audio processing system, updated to add the newly announced NRSC standard for pre-emphasis; the Model 787A programmable mike processor; and the Model 464A Co-Operator, an integrated level-control system.

Also showing is the complete range of products for the Orban Stereo Television system, and the 8100A/1 Optimod-FM audio processor/stereo generator, and the Orban Pro Audio Blue Chip line.

Kintek, Inc. (2455) will introduce the KT-904PP stereo converter for synthesizing stereo tracks in post production.

Aphex Systems (2816) will demonstrate its new Model TBA ultralinear FM stereo generator, featuring extreme temperature stability, high separation, and superior sonic quality. Other featured products will include the Compellor automatic gain control and compression unit, the Aural Exciter psychoacoustic audio enhancer, and the Studio Dominator multiband peak processor.

Eventide (2830) will unveil a

MIDI control interface for its SP2016 effects/reverb processor. Established products will include the SP2016, the BD980 broadcast delay line, and the H969 and H949 Harmonizers.

Texar, Inc. (2571) will be exhibiting its line of digitally controlled AM and FM Audio Prism audio processors.

Circuit Research Labs (2538) will introduce two new products designed to assist in the implementation of new AM Standard Pre-emphasis and Filter Specifications to existing hardware. Will also be demonstrating its full line of audio processing and generation equipment for AM, AM Stereo, FM, and MTS TV.

Dorrough Electronics (2602) will feature the Model 610 Discriminate Audio Processor, and Model 80-B FM stereo generator.

Radio syndication

As further testimony to the

strength of the compact disc, all of the major production music and sound effects suppliers will have libraries on CD at this NAB show.

Omnimusic (2775) will show the new Professional Broadcast Package of digital CDs featuring 30- and 60-second instrumental beds for use in programming and production. These six releases contain more than 250 cuts, including logos, bumpers, fanfares, and specialty pieces. Also showing the Omnimusic Production Music Library, Cabletrax, Atmosphere music libraries.

Valentino Inc. (3465) will introduce a new digitally recorded, digitally mastered sound effects library on ten color-coded CDs. A production music library on CD and LP libraries will be on display as well.

Network Production Music, Inc. (2627) will be introducing the Network music and sound effects libraries on compact disc. There



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SONEX is a special acoustic foam that absorbs noise four times better than acoustic tile or carpeting. It makes you sound like a pro — inexpensively — because your voice comes across clear, clean, and intelligible. Use SONEX for video, remote conferencing, voice-overs, radio communications, audio production, or anywhere else you need to sound crystal clear. Kill background noise beautifully — and save the true sound — with SONEX. Send for all the facts. SONEX is manufactured by Illbruck and distributed exclusively to the pro sound market by Alpha Audio.

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Acoustic Products for the Audio Industry

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RADIO/AUDIO

will be initial introductions of 54 music CDs and 40 sound effects CDs.

Firstcom (2829) will introduce a digitally recorded sound effects library on CD and add 5 CDs to their existing production library. Meanwhile, Century 21 Programming (3452) will introduce new GoldDisc music libraries on CD for CHR, AC, Mellow AC, Oldies, and Country formats. Also new

will be auto-segued adapters for commercial CD players and music rotation software especially for CD formats. The SuperCarts Series of prerecorded broadcast carts from digital sources will be demonstrated.

Associated Production Music (2650) will follow suit with two new music libraries on CD—"Inspiration" and "Classical Fusion 3"—to its established catalog of

music libraries and production music.

Finally, the Musicworks (2443) will be providing information on radio syndication formats, including Alive Country, Country 80, Casual Country, Factor 5, the Country Oldies Library, and the Weekend Announcer Service.

**Station automation/
management/
programming**

Station management and scheduling have largely become tasks for microcomputers in recent years. NAB '87 will see the debut of several new PC-based systems and software packages that perform a variety of functions, including accounting, music rotation, and newsroom management.

Following the merger of Data Communications Corp. and Jefferson Pilot (3204), the company will introduce the JDS Autoselect III, a music rotation system, and Byline electronic invoicing. Also on hand will be the BIAS, MPI, and JDS systems for sales, traffic, film management, music rotation, accounting, and newsroom computing.

Columbine Systems (3405) will unveil the United System, a new software package designed for the IBM System/36 and System/38 that encompasses all the functions currently automated by Columbine. A variety of software packages—including newsroom management, payroll, general ledger and accounts payable, and music inventory—will also be on display.

New co-op management and copywriting software for radio stations will be featured by Custom Business Systems, Inc. (2517). Also on display will be The System, an integrated business software package for radio station management, available for a variety of PC and Wang mini-computers.

Meanwhile, full scale station automation continues to be a developing trend of major significance for radio broadcasters. NAB '87 will find several companies addressing the needs of this impor-

Designed specifically for television and video post, the split-concept serial architecture found in the Orion AMU series audio mixing system enables interface to virtually any SMPTE controllable device including production, routing, and master control switchers and video editors.

Standard software features include ReMem™, the disc based Recall Memory System that allows on-demand storage, recall, and reset of full panel set-ups (including EQ), providing an invaluable tool for any repetitive program or complex edit session.

With full input-to-output stereo processing — and up to 32 stereo inputs plus a traditional panel layout, the AMU has the capacity, audio features, and ease of operation necessary for efficient audio production in both broadcast and video post.

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AM stereo and C-QUAM[®]: Superior performance is the Delta difference

Like more than 40 dB of channel separation for a purer, cleaner sound your listeners can hear. But we didn't stop there. We engineered our improved C-QUAM[®] system for all around excellence:

The Delta Difference is applied technology:

- More than 45 dB* channel separation for a purer stereo sound, guaranteed 43 dB* at 1 kHz and 40 dB* at 5 kHz.
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- Day/night and stereo/mono capability remotely controllable.
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The Delta Difference is longer life:

- Chassis mounted heat sinks at critical points.
- Improved high-efficiency power transformer for cooler operation.
- Multi-board construction for simplified maintenance and trouble-shooting.
- Zero insertion force card edge connectors assure longer contact life.

The Delta Difference is economy:

- Day/night or main/auxiliary audio equalization is a no-cost option.

The Delta Difference is experience and commitment to your industry:

- More than 23 years serving the broadcast industry.
- More than 60 operating installations of Delta C-QUAM AM stereo systems in the U.S., Canada, Australia and Africa. (And the number continues to grow.)

- A highly experienced installation team ready to serve your needs.

When you're ready to bring AM stereo to your listeners, check on the Delta Difference.



For complete information on ASE-1 AM Stereo Exciters and ASM-1 AM Stereo Modulation Monitors, contact Delta at (703) 354-3350.

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* 50% single channel, closed loop exciter monitor

DELTA ELECTRONICS



tant new market. For example, Systemation (2458) will be introducing several new products including the DX-7, a digital automation system with random access of up to 150 songs on a single videocassette. Also making its debut will be a total remote control terminal that displays a full video screen of everything that's cued up and further allows all console functions to be controlled over the phone.

A new telephone interface with four line inputs and digital storage on hard disk of up to one hour of randomly accessible audio material will also be introduced. Other new products include Super Track, a cassette-based system for the total automation of systems on the Satellite Music Network; Information Base, displays on-screen information for any song that is cued up (database will soon cover 12,000 songs); PC Playlist, a complete music selector software package; and Electronic Affidavit, a system that listens for commercials on the air and then stamps and mails out verification when it hears them.

BASYS (2913) will introduce the BASYS System I, which utilizes 80286 microprocessor technology and contains all of the popular BASYS software functions, although it is designed for small newsroom applications. Also making its debut will be the BASYS Archive System, a cataloging system for

storing and retrieving scripts, tape/film/slide still store records, notes, and files provided by the wire services.

Grumman Electronics Systems Division (2481) will be showing its AIS-5000 Ad Insertion System with built-in self diagnostics and random access, computerized control of spot insertions and complete automation capabilities for sales, traffic and machine control, and billing.

Meanwhile, Broadcast Automation (2697) will introduce an amp panel for the IGM EC automation system and EC carousel interfaces for SMC 250 carousels. Also displayed will be the IGM EC automation system, including new Otari ARS-1000 tape decks, single-play cart decks, and remodeled SMC 250 carousels.

Intercoms/Telco interface

A flexible communications system is essential in today's fast-paced broadcast environment. The latest generation of intercoms and telco interface equipment offers both versatility and improved audio quality.

Swintek Enterprises (2413) expects to introduce the Mark 200D/C radio intercom for use with RTS, Clear-Com or Telex units.

Meanwhile, new products from Reach Electronics (2437) will include SCA 2VR81 TOP tone-only pagers, LIAISON 21DYE1 Dial

Access Paging terminal, and the L'Page 2TE7 manual paging terminal. Also on display will be the SCA 2VR82 VIP II tone and voice pagers, conventional 2VR152 and 2VR32 high-band and low-band tone and voice pagers, manual paging terminal 2TE6, VEE-TRONIX keyboard, and panel-mount switches.

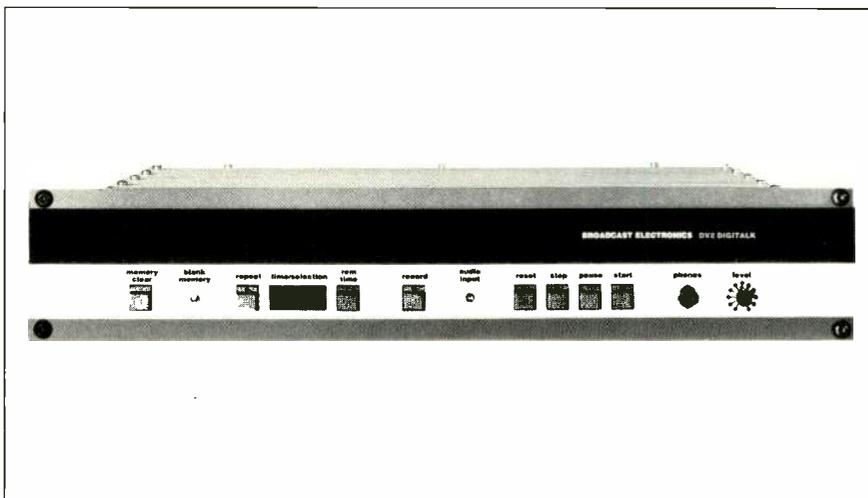
Allied Broadcast (3414) will feature the Telnox radio/telephone system and Titus Technical Laboratory's "Last Word," Advanced Micro Dynamics' remote control.

Clear-Com (3352) will introduce the line of Series 500 intercom belt packs, incorporating a custom-designed digital IC to control noiseless electronic switching on all audio and signaling circuits, enabling advanced features and user programmability. Also shown will be the line of main stations, belt packs, IFB, remote speaker stations, system interfaces, dynamic headsets, and intercom accessories.

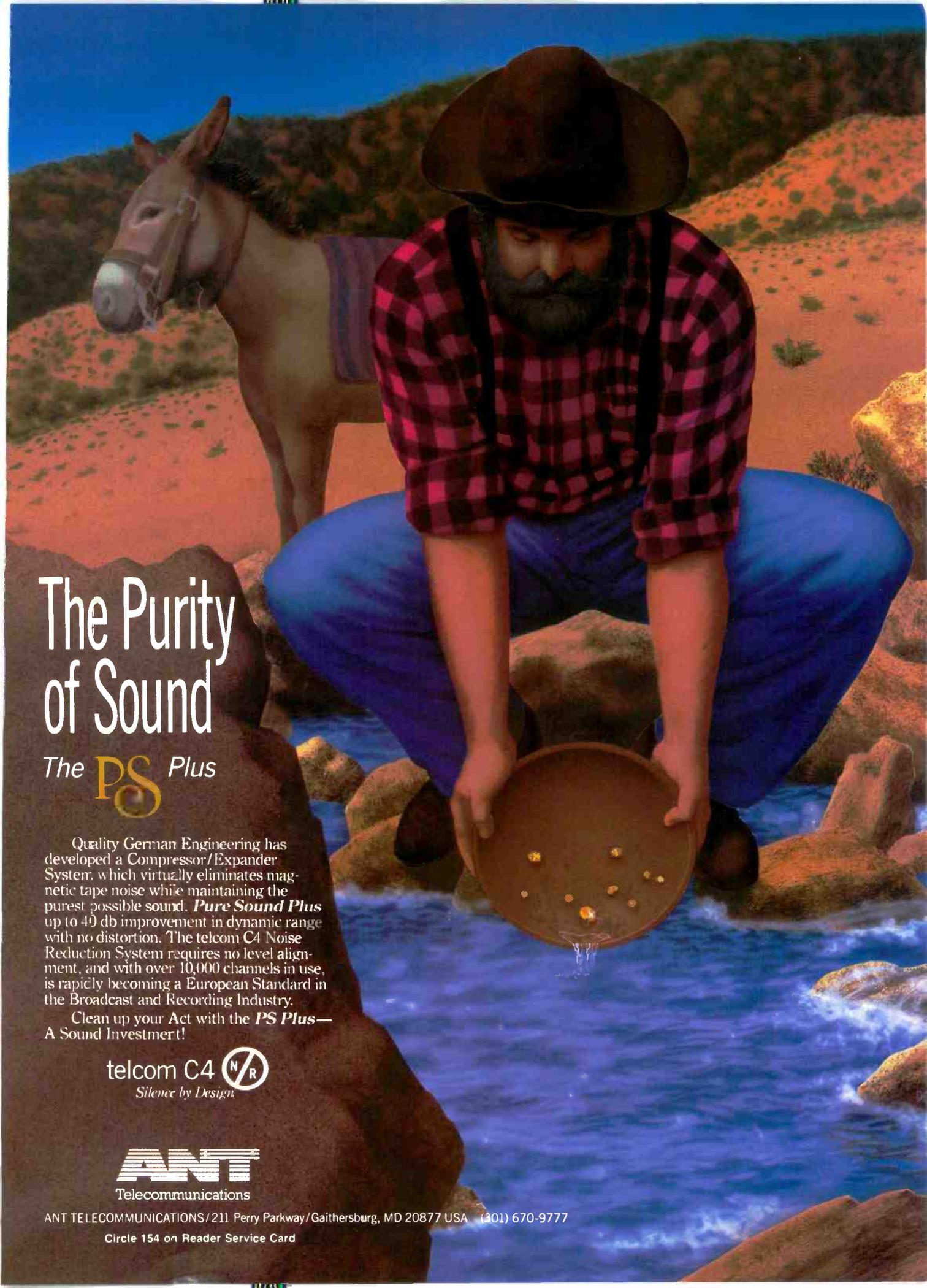
A new telephone hybrid interface will be featured by Comrex Corp. (3460). Single- and dual-line frequency extenders, telephone couplers, ENG and satellite news gathering cue systems, and TV aural monitors will also be on display.

Gentner Engineering (2669) will introduce the Digital Hybrid, an auto-nulling, on-air telephone system using digital signal processing techniques. Established products on display will include the VRC-1000 remote control unit; the SPH-3A, SPH-4, and TC-100 telephone systems; the Teleprocessor telephone audio processor; the Microtel portable telephone interface; the EFT-900 and EFT-1000 audio bandwidth extenders; the 10A and 20A audio routing switchers; the IC-20 intercom system; and the full line of audio patch panels including Versapatch.

Last, but certainly not least, Broadcast Electronics (3226) will introduce the final version of its DV2 Digitaltalk, a solid state digital voice or music recorder/reproducer specifically designed for radio call-in applications. **BM/E**



The DV2 Digitaltalk from Broadcast Electronics is a digital voice recorder/reproducer for radio call ins.



The Purity of Sound

The **PS** Plus

Quality German Engineering has developed a Compressor/Expander System, which virtually eliminates magnetic tape noise while maintaining the purest possible sound. **Pure Sound Plus** up to 40 db improvement in dynamic range with no distortion. The telcom C4 Noise Reduction System requires no level alignment, and with over 10,000 channels in use, is rapidly becoming a European Standard in the Broadcast and Recording Industry.

Clean up your Act with the **PS Plus**—
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Classic beauty is unmistakable. You know it when you see it.

Like the beauty you get with Ampex 196. Clean, clear pictures that capture every sparkling moment of your production.

No other video tape delivers such consistent low-dropout performance. Or such dynamic picture quality.

By focusing on critical dropouts, especially in the area not compensated for by your VTR, we developed a video tape you can rely on for all your applications.

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If you'd like to know more about how APM contributes to beautiful pictures, call or write Ampex today for a free brochure.

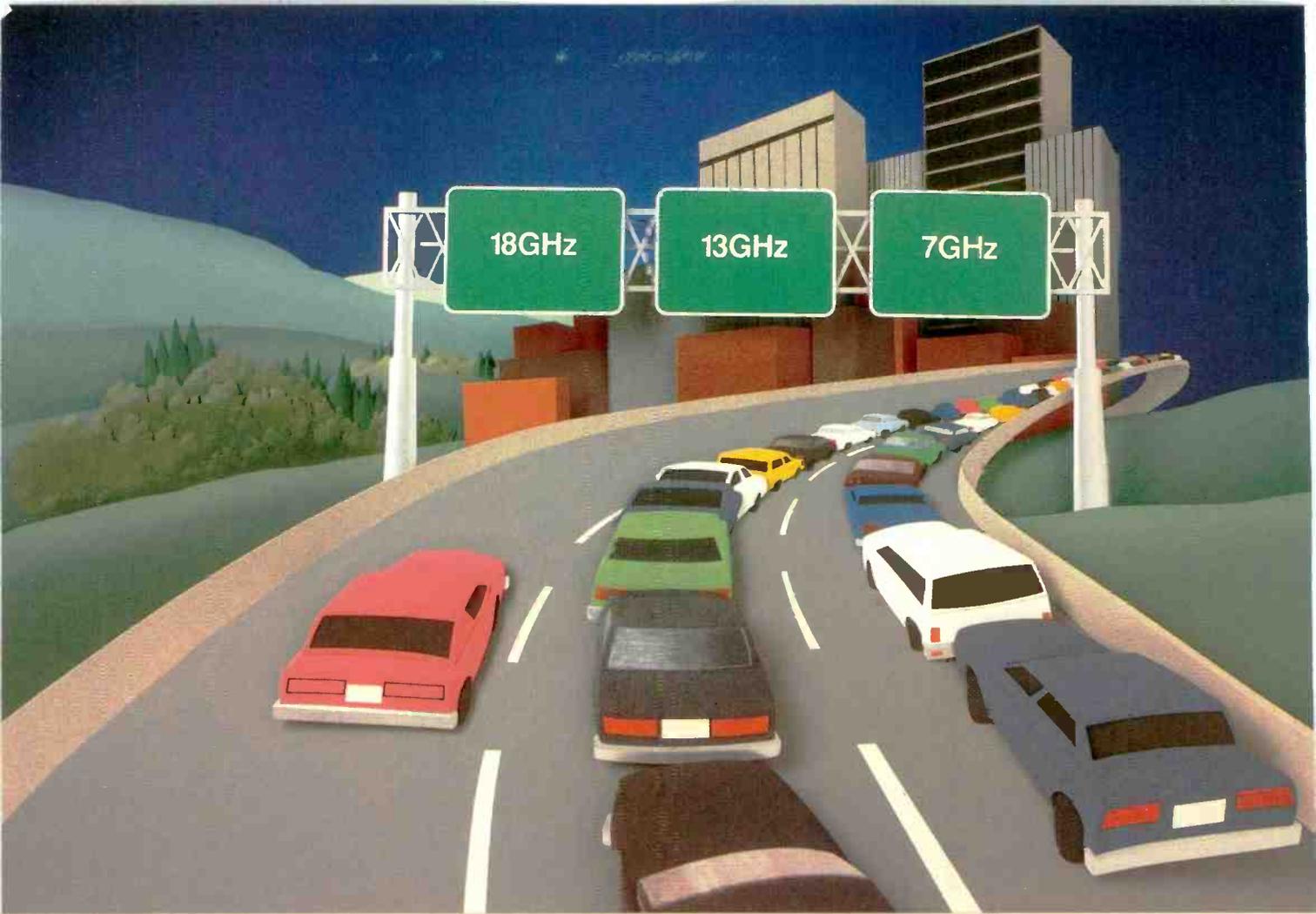
B E



A U T Y

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If you've been looking for an open frequency at 7 or 13GHz, you're not alone. In many areas, they simply aren't available: there's too much traffic and not enough spectrum.

M/A-COM's new 18GHz microwave system gives you another option: a wide-open band which the FCC has assigned to broadcast. It gives you 50% better link availability (or 40% longer range) than 23 GHz, and none of the congestion of the lower frequencies.

The MA-18CC is a fully-featured microwave system, designed to meet or exceed all RS-250B short-haul performance

specifications. It is field tunable, and a single gunn oscillator covers a wide selection of frequencies so spare parts can be kept to a minimum.

For over 20 years M/A-COM MAC has specialized in providing microwave radio equipment to broadcasters. Every unit with our name on it is built in our own factory, so we not only control the quality, but we know how to service it.

For more information on how you can streamline your microwave needs, contact M/A-COM MAC, Inc., 5 Omni Way, Chelmsford, MA 01824, (617) 272-3100.



Circle 155 on Reader Service Card

WHAT'S hot

RF/SATS, T&M

Transmission promises this year to be one of the areas of greatest activity. Perhaps it is still part of the fallout from RCA's withdrawal, or perhaps the broadcast industry seems now to reflect a healthier climate, but either way, there are many new companies and new products on display this year for attendees to mull over. Higher power, solid state technology advances, single tube improvements, and various satellite transmission changes will draw much attention. In test and measurement, progress is still being propelled from the computer hardware and software side as diagnostics, printouts, and a slew of storage demands are being made on measuring instruments.

While there are developments going on in many areas of AM transmission and signal processing, once again the talk will turn to AM stereo in the hope that the existing questions of which system to chose can be resolved and the industry can begin rebuilding itself. The opening session on Friday, March 27, is devoted to AM improvement.

There are many areas of interest for FM, beginning with the power question and moving right on through propagation and SCAs. Several manufacturers will have new gear. Remote systems and diagnostics will be as important this year as ever before.

Few new companies are appearing on the horizon in the test and measurement department, but innovations continue as the heavy-

weights in the field continue to slug it out. The biggest changes come in portability and added features for any number of instruments, this due in large part to continued computerization of test gear.

The frenzy over satellite news gathering vehicles is unlikely to subside to any great extent, just as it is unlikely to erupt as it did last year. The action here seems to be in making the trucks more spacious, offering greater production capability, and improving load capacities. One should not ignore, however, improvements in antennas and the controversial subject of hub-mounted amplifiers. A new twist from Graham-Patten is the VAMP, Video Audio Multiplexing Process allowing four channels of digital audio, baseband video, and auxiliary data channel to be combined into a signal suitable for satellite or terrestrial transmission.

Transmission

For AM broadcasters, stereo transmission still has to be one of the most important concerns. To some degree, the conflict over systems still exists regarding Kahn and Motorola. Motorola (3539) will exhibit the latest generation of C-Quam AM stereo exciters and modulation monitors and a display of new receivers. Kahn Communications (2922) will bring a host of AM stereo products includ-



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Serving Local America

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ing the STR-84 exciter.

Meanwhile, there will be an announcement at Delta Electronics' booth (3488) concerning a new AM stereo matrix audio processor. Featured products on display include the line of AM stereo exciters and modulation monitors, remote control systems, and RF instrumentation products.

Nautel (2658) will make its contribution to the AM industry with its Ampfet line of solid-state modular AM transmitters from 400 watts to 50 kW. The last large American transmitter manufacturer, Harris (3136), in addition to its complete AM line, will bring a new external-cavity Klystron UHF transmitter, the FM 25 K1 FM, the 950 MHz SiteLink aural STL for radio, the 6 GHz portable microwave transmitter/receiver.

Marti (3496) too will show its studio links, the TSL-30 and the STL-10 spectrum efficient stereo

PCL 606. Advanced Micro Dynamics (2672), another first timer at NAB, will show a line of transmitter remote control systems offering multiple site operation and with communications options including subcarrier and dialup. Cat Systems (3426) will unveil a new HQ Series of computerized remote control systems for transmitters and earth stations.

Remote products will be exhibited by Gentner with a full range of systems being available.

Hallikainen (2925) will introduce new, low-cost UHF control/telemetry equipment and a 32 channel status transceiver.

For those interested in FM only, QEI (3336) will be showing the 695T30kW 30 kW transmitter, the Model 691 modulation monitor and the 675T500 500 watt emergency transmitter system and the Model 695 exciter.

In its booth, Shively Labs (2442) will introduce half-wave spaced antenna technology for handling excessive RF radiation. Also new will be the company's vertically polarized FM antennas and special ratio FM antennas. Energy Onix (2704), at its first NAB, will debut with models of solid state FM exciters from 15 to 1000 watts, single-tube FM transmitters from 3.5 kW to 30 kW, and FM amps from 60 to 500 watts.

AEG (2700) is set to unveil the S3217 10 kW single-tube FM transmitter and is also showing the line of solid state FM transmitters from 100 watt to 1.5 kW.

In FM processing, Inovonics (2434) will introduce Model 255 triband PWM stereo audio processor, and the Model 705 FM/FMX stereo generator featuring 16 kHz response, switchable pre-emphasis, overshoot-controlled low pass filters, and the FMX system as a low-cost plug-in option.

TV transmitters

Television-related transmission will be much in evidence this year as well. Johnson Electronics (3451) will be showing its new products, the ST-TV and DC-TV for transmission of second TV audio program over the air or in the pro channel for remote cueing.

Also new is data transmission service via SCA.

Marconi (3572) is slated to demonstrate the B7500 30 kW VHF high-band transmitter, along with a 1 kW solid state FM Eddystone transmitter and a UHF exciter and pulser for high-efficiency klystron operations.

Larcan Communications (3314) will be introducing a 5 kW high-channel type TTS-5LH externally diplexed VHF transmitter and a 250 watt high-channel VHF translator. Also on display is a 30 kW low-band VHF TV transmitter and a 25 kW FM single tube transmitter contained in a four-by-three-foot cabinet.

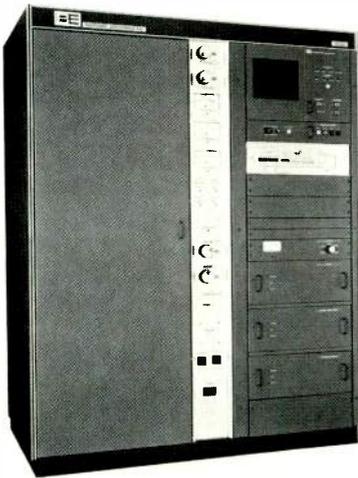
ITS (2415) is introducing a solid state video modulator for older RCA transmitters, the Model 300, and ICPM measurement set, VHF exciters, VHF aural IF modulator for MTS conversion as well as the full line of amplifiers and exciters.

Klystron-based UHF transmitters are available from Comark Communications (3190) as well. New this year will be the CTT-U-60SK, 60 kW unit, and an existing model, the CTT-U-2MX 2 kW will also be demonstrated. New products in the VHF department include the CTT-V-30L/H all solid state transmitter and the -50L/H single tube 50 kW system.

NEC (3161) is, for the first time at NAB, showing the PCU-960 60 kW UHF transmitter. Television Technology (3580) will be introducing the UHF-60S 60 kW transmitter, stereo compatible, with dual klystrons and dual power supplies. Also showing 1 kW UHF and 100 watt UHF TV transmitters and 25 kW FM translator.

Acrodyne (3521) will introduce the TRH/30 KA single tube 30 kW VHF TV transmitter and new 25 kW and 30 kW UHF transmitters featuring the Thomson TH-563 tetrode. The company is also showing the LL/400 400 watt VHF broadband solid state amplifier for television transmitter upgrades and IPA retrofits.

Townsend Broadcast (3305), a newly combined company of Townsend Associates and Broadcast Systems, will show a new 30 kW low-band VHF television



The Broadcast Electronics FM35A transmits 35kW of power.

unit and the ARS-30 automatic repeater system. Nurad (3573) will announce three series of superheterodyne transmitters and receivers for STL/ICR applications from 2 to 13 GHz, also 23 GHz transmit/receive systems featuring full diagnostics/alarms and up to four audio subcarriers, meeting RS 250B.

Moseley (3202) plans to demonstrate the MDU dial-access remote control and the new PCL 600 studio transmitter link and the



NEWS FROM THE OUTER LIMITS IN MINUTES

When news breaks in a remote location, the farther away you are from your station, the longer it takes to get the story back to your newsroom.

The Networker from Centro is designed for ease and speed of set up. Your crew can easily have the Networker linked up with the proper satellite with all systems operating and transmitting live news back to the newsroom within minutes.

ONE-OF-A-KIND DISH OPERATING SYSTEM

This capability for fast action is made possible, in part, by a computer engineered dish mounting structure. This unique system not only allows for fast link-up but it eliminates the possible 2-degree uplink tolerance problem and stabilizes the dish even in heavy weather.

INDIVIDUALLY EQUIPPED TO YOUR SPECIFICATIONS

Before building an SNV, we

listened to people who needed them. And we learned that a standard SNV product could not meet everyone's varied needs.

That's why every Networker starts out with the basic aerodynamic shell and ends up as the perfect SNV for your specific needs by integrating each individual component you need in your Networker.

If you need production capability, you get it. Editing capability? It's yours. More monitors or a character generator? Just say the word.

And it's all assembled according to Centro's demanding quality standards utilizing sound human engineering principles. That means everything you wanted is right where you need it so effort goes down and productivity goes up.

STANDARD FEATURES DELIVER OPTIMUM PERFORMANCE

Every custom designed Networker is complemented by features most often mentioned by users we surveyed:

- A van-style vehicle which is easy to drive and easy to get into, and out of, tight spots.
- Sturdy Ford chassis for service and parts availability virtually anywhere.
- A powerful gasoline engine to ensure easy fuel access at any service station.
- A 2.3 meter dish with 49.5 Dbi gain and selectable-adjustable vertical and horizontal polarization from inside the vehicle.
- Six equipment racks for maximum equipment compliment and future system expansion.
- Abundant storage area over the driver's compartment which can also be utilized for a co-driver bunk.

The Networker's easy set-up and custom design let you get news from the scene to the station no matter where you are. If that's the performance you look for in an SNV, look to Networker by Centro.

SEE THE NETWORKER AT OUR BOOTH AT NAB

Visit booth #3181 inside or #34 outside

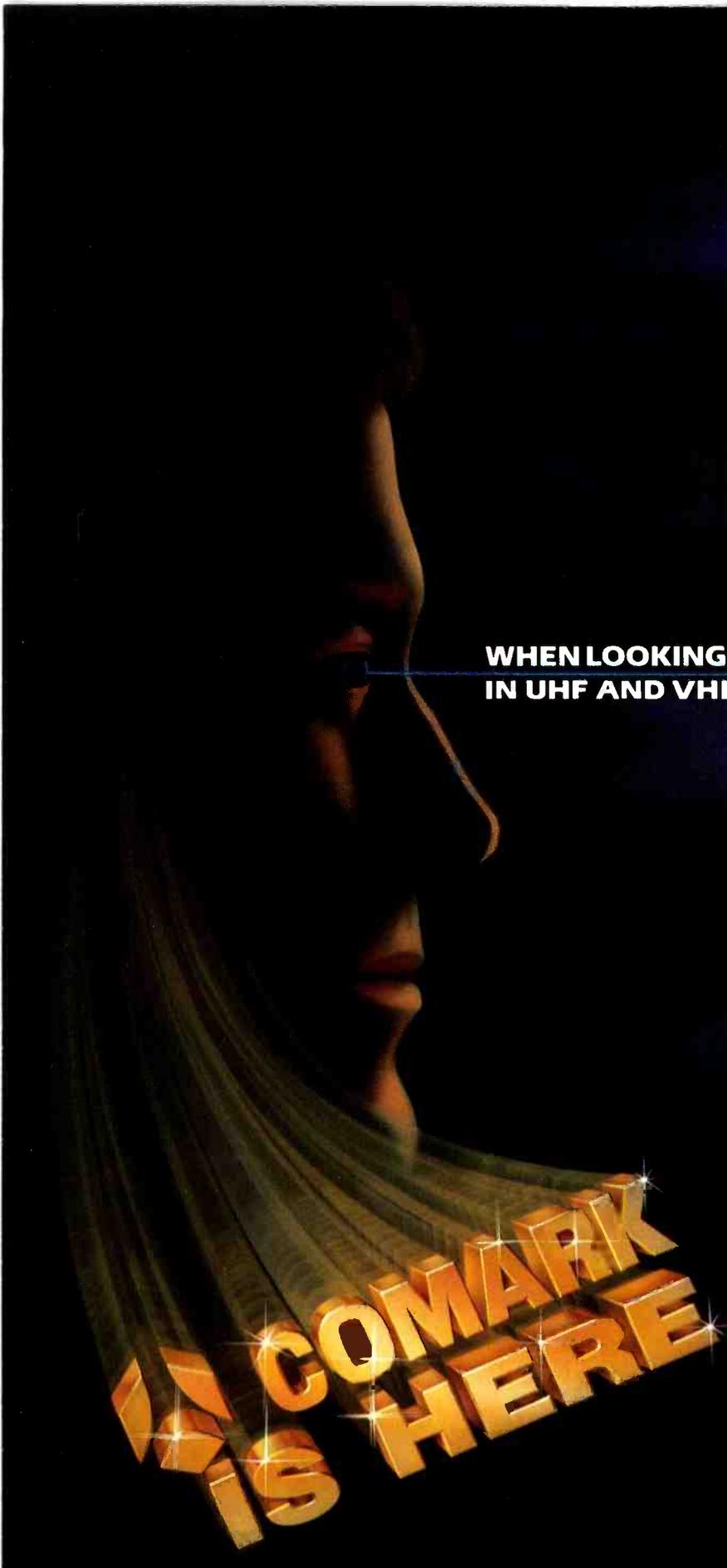
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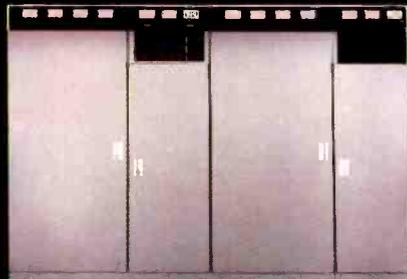
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Comark's recent track record of technological innovations is unmatched by any other US manufacturer. This impressive history of recognized advancements demonstrates our commitment to the future. A commitment backed by continuing substantial investments in research and product development activities.

Incorporating new technology into today's products is your assurance that the Comark transmitter purchased now will still be current in the year 2000.



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BROADCASTING

Aug. 18, 1986

"Both COMARK and Thomson-LGT made news at the NAB..."
"COMARK introduced a 60 kw UHF transmitter with a KLYSTRODE..."

"...Thomson-LGT introduced a 30 kw SOLID-STATE VHF Transmitter..."

"Comark...first domestic source for BCD/ABC beam current pulsing systems..."

COMARK

**LEADING THE INDUSTRY
IN TECHNICAL
INNOVATIONS**

**BM/E June 1986
NAB Show-In-Print**

"...the principal advance reported at this NAB was the long-awaited commercial realization of the KLYSTRODE TUBE design in a production transmitter from COMARK..."

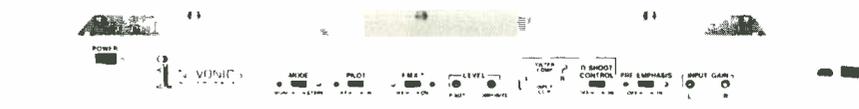
"COMARK is first US manufacturer to build production transmitters specifically designed for and featuring wide band external cavity KLYSTRON amplifiers..."

**BROADCAST ENGINEERING-
May 1986 Transmission
Systems Special Issue**

"High-performance Klystrons, Klystrodes and solid-state RF amplifiers are reducing operating costs and improving broadcast transmitter quality..."

"COMARK was the 1st domestic manufacturer to design and produce no-tuning solid-state exciter/driver for use with Klystron transmitting systems..."

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Model 705 FM/FMX stereo generator from Inovonics continues the technology

transmitter with new control features. It will also demonstrate new amplifiers for two UHF klystron units of 60 and 10 kW and a new driver controller. EMCEE Broadcast (3032) has a new synthesized frequency agile transmitter for ITFS/MMDS, a new broadband downconverter, and a new line of VHF and UHF transmitters.

Electro Impulse (3431) will announce three new dry, forced-air cooled dummy loads for FM and will show its RF calorimeters.

Continental's (3200) full line of AM and FM transmitters from 1 to 70 kW and FM antennas will be on display at its booth. CSI (3418) is planning to introduce the T-40-F 40 kW single ended FM transmitter and CSX-20F exciter using a second order phase lock loop.

Bringing its full line of RF products, TFT (3420) will be unveiling a new remote pickup unit from five to 25 watts, operating in the 450 MHz range, ac or dc powered. The units offer built-in companding and both transmitter and receiver are frequency agile. Model 852 programmable BTSC cable TV aural modulation monitor is also new and will have a complete range of STLs, stereo modulation monitors and its BTSC subcarrier system.

Kintek's (2455) contribution to RF includes the KT-904S stereo converter for FM and TV broadcasters. Also on display will be the KT-960 monogard, a correction system for reversed polarity feeds in mono or stereo, and the KT-932, a frequency blind and amplitude audio phase meter with one degree resolution.

Antennas and towers are needed as well. Kline Iron & Steel

(2797) will be featuring TV and FM structures, including guy towers, self supporting and platform towers, multiarray towers, and space frame structures. Allied (3432) is scheduled to show towers for AM, FM, and TV as well as microwave systems.

Bogner Broadcast (3406) is announcing the new DUI series of side-mount UHF TV antennas with reduced weight and reduced wind load. In addition, the full line of television antennas and microwave products will be on hand. Stainless (2735) guyed and self-supporting towers for AM, FM, TV and microwave equipment will also be exhibited.

L&R Communications (2417) will exhibit examples of its tower masts and tower rigging. Preassembled and portable equipment shelters will also be on display.

High-power FM antennas will be on display from S.W.R. (3350) as well as panel and pole-mount units. Multistation FM antennas and standby UHF antennas will also be on display.

Pinzone (2411) is introducing the CPG anti-skywave antenna, a low-profile unit for AM, providing six to 10 dB gain over a standard quarterwave antenna. Jampro (3587) has a new FM broadband antenna for use by two stations simultaneously, also a complete line of FM antennas, TV antennas, and CP TV spirals. LDL Communications (2417) is announcing a new low-band top-mounted CP antenna for TV and FM applications and a UHF antenna capable of high-power multichannel operation.

Kahn (2922) will have an impact in antenna broadbanding

with the Flatterer, designed to broadband any mono or AM stereo antenna in a single night. Also showing its AM stereo systems. Central Tower (2799) will introduce ice shields for towers. AM, FM, TV, microwave towers are planned for discussion.

EG&G (2612) is highlighting its antenna obstruction lights and lighting systems. Dielectric



The TH-563 tetrode from Thomson offers 50kW UHF power from one tube.

(3436) has doubly truncated waveguide for UHF TV and a full line of FM ring and panel antennas. Flash Technology (3454) will demonstrate new medium intensity beacons for towers up to 500 feet, and new controllers for beacons and red lighting systems.

Lightning Eliminators (151) is showing dissipation and array systems designed to prevent lightning strikes on towers. Valmont Industries (224), a first time exhibitor at the NAB, will show antenna support systems, poles and lattice towers.

Tubes, of course, drive the transmitter industry, and there will be a few major companies in this department with interesting exhibits. Thomson (3422) will highlight its introduction of the TH759 300 watt Ku-band conduction cooled TWT and the new TH546 tetrode for 100 kW FM operation. Also on display will be the TH346 air-cooled tetrode for 50 kW FM high-gain applications.

Varian (3206) will debut a new modular, replaceable TWT power supply and a Ku-band medium power amplifier. In addition the GEN II Ku-band klystron high power amplifier will be shown. The line of low-frequency triodes, medium-frequency tetrodes and pentodes, and switching products will be demonstrated.

Ceco Communications (3343) will have its full line of tubes, transmitters, power, and CCTV communications tubes. Peter Dahl (222) will have a line of high voltage power supplies for TV klystron applications.

Satellite systems

Size, speed, and quality. That's the name of the game. The craze to gather the news in increasingly rapid and, thus, portable, fashion has ignited the satellite newsgathering explosion. It has, apparently, brought to fruition the coming-of-age for the burgeoning "flyaway" systems. When looking for any of these systems, bear in mind that many of the companies have booths on the exhibit floor as well as outside exhibits.

A.F. Associates (3170) will be hosting the Marconi Newshawk flyaway earth station. Making its entry into this area of technology is Midwest Communications (3210) with its S-1 transportable Ku-band uplink, consisting of a 1.8-meter antenna with a two-part prime-focus offset feed assembly. Full-sized satellite news-

gathering vehicles will also be available from Midwest, including the SNV 18 and SNV 23 with a 2.6 dual reflector antenna on a 21-foot van.

Another flyaway will be introduced by Vertex Communications (2447). It incorporates a 1.8-meter antenna transportable in five suitcases and assembled by a single person in approximately 20 minutes. Harris plans to show its version of the portable flyaway system.

In other satellite news vehicles there are several hot items from companies well known to broadcasters. Hubbard Communications' (3286) introductions include the HCP-500 video time delay machine with microprocessor control for delay of incoming satellite feeds and the new SNG-220 truck with increased production rack and storage space. Also on view will be the Low-Boy, the Chevrolet chassis-based truck and the SNG-VFP, video flight pack for international and domestic SNG operation.

BAF (2544) plans to announce the BAF 220, a 21-foot Ku-band uplink with Andrew's 2.3-meter fully compliant offset antenna. The Model 450 is a 25-foot uplink offering more production space. Ethereum Scientific (2464) will unveil a fully redundant Ku-band truck as part of the Embarc network of vehicles.

The new Star Fleet 21 truck from Roscor (3404) will be on display. The vehicle is built on a Ford



Continuing trend towards portability is the Leader LVM-563A EFP monitor.

E350 chassis and weighs under 10,000 pounds fully equipped. The company will also have the Sports Editor system designed for professional teams who need to break down tapes according to the type of material recorded on them.

Those in need of antennas and receiving and transmitting hardware for both fixed and transportable systems can find them at Harris among others. Scientific-Atlanta (3272) will be offering low-cost motorization for the 4.5-meter antenna and the PC-based earth station controller. Ku-band, L-band loop test translators will be introduced as well.

Microdyne (3520) will feature a new, fully agile C/Ku-band satellite video receiver and a fully programmable C/Ku TVRO. Transportable Ku-band uplink and C- and Ku-band SCPC equipment will on display.

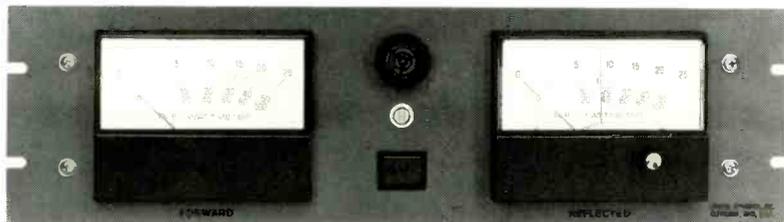
Keltec (2435) will feature the R60-300KU, 300 watt Ku-band HPA in a seven-inch rack, weighing 75 pounds. Also new will be a hub-mounted 300 watt Ku-band amplifier, environmentally sealed and operating at 14 to 14.5 GHz. Radiation Systems (2929) will show TVRO systems and the SatCom Technologies 2.4-meter SNG antenna. Introducing its new DSA 654TM is DX Communications (2693), which offers computer-controlled capabilities in a Ku-band receiver for newsgather.

Discussing its services to the broadcast industry, GTE Spacenet (3324) will have Call Express for Ku-band satellite-based voice communications, News Express service for satellite newsgathering, and Turnaround Service, allowing stations to convert between Ku- and C-band.

Conus (3385) will have information about its Ku-band satellite newsgathering system, including space segment on the SBS II and RCA Americom K2 satellites. Specialized services such as event coordination, live coverage of breaking news, and special programming will be offered. Conus is also involved in a joint venture with the Associated Press in TV direct.

For those overseas news tie-ins

Measure Up With Coaxial Dynamics Model 81070 WATTCHMAN Transmitter Protection System.



WATTCHMAN — protects your transmitter and transmission line system. A permanent 19 inch rack installation used with any dual socket line section 7/8", 1 1/8", 3 1/8" and elements (additional) to monitor CW, TV, and FM power. Model 81070 features two easily read meters to monitor both forward and reflected power. The reflected meter provides a front panel adjustable set point which controls the trip level for fast transmitter shut down and alarm. Abnormal load conditions quickly cause transmitter shut down in less than 15 milliseconds including control relay. Both visual and audible alarms indicate system malfunction. Contacts provided for remote alarm and reset switching.

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The Telex LM-100 miniature lapel mic system

TINY but TOUGH!

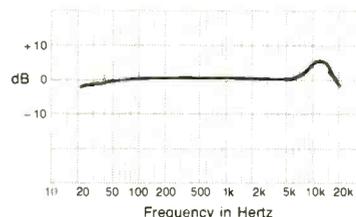
The LM-100 is an omnidirectional condenser mike system which includes the tiny LM-101 microphone and Telex PS-10 in-line phantom power supply. This mike was designed for day-in and day-out professional use under the most adverse conditions. In environmental testing, the LM-100 performed perfectly in extremes such as below zero temperatures, snowy television interviews and on location in the boiling heat of a desert Hollywood movie set.

The Telex lapel mike has a non-glare black finish and is supplied with three styles of mounting clips. The mike has a three foot cord terminated in a TA4F plug. This specially designed cord is extra supple



and quiet to prevent irritating clothing noise. A foam wind screen is available as an accessory for extra windy, outdoor use. For detailed information write

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to local broadcasts, there are news satellite services available at the NAB show. Comsat (2792) offers transmission services to and from more than 110 countries. Comsat General will discuss SkyBridge, its Ku-band service, and its C-band and other offerings. Cycle Sat (2645) will illustrate its satellite distribution and production system with a live demonstration linking the exhibit with its satellite hub in Iowa.

Wold Communications (2606) will offer its full range of satellite services to the TV industry including fixed and mobile uplinking/downlinking, space segment, and network coordination.

Mobile and microwave

E-N-G Corp. (3308) is exhibiting its ¾-ton four-wheel-drive Suburban designed for off-road use and will also show its one-ton news truck. Wolf Coach will have its display of various ENG vehicles. Midwest will exhibit its full capabilities in the ENG and production van category in addition to its previously mentioned SNV offerings.

Also, look for a new NBC production truck, the N8 Stereo sports Mobile for ideas on remote productions. The unit features a new solid state logic computerized console.

For ENG applications, RF Technology (2809) will announce the UPL series of low-volume, low-cost transmitters for short haul and wireless camera use. Also on hand will be the 1 watt and 250 mw RF output versions and the 200 series ENG transmitters with full frequency agility.

M/A-COM (3280) will introduce a terrestrial microwave system operating at 18 GHz and compatible with the company's 23 GHz product line.

Broadcast Microwave Services (3578) showing belt pack portable microwave systems for stadium and convention coverage and full line of transmitters, receivers, antennas, and antenna systems.

Communication Microwave (130) is showing its line of solid state 30, 50, and 100 watt microwave transmitters.

Adelphon (234), a first-timer at NAB, will introduce a new type of rapid deploying portable mast. It is not hydraulic or pneumatic and extends to 160 feet from a 1000 pound, three foot unit.

Will-Burt (2587) will feature a new 42-foot extended telescoping mast with new features and a 27-foot standard duty mast with new additions. Rockwell International (2484) plans to display its video microwave transmission system.

A new microwave antenna from Motorola C&E (3442) will be presented in the 23 GHz range. The company will also have its line of communication equipment, its analyzers, cellular telephones, and paging systems.

Test and measurement

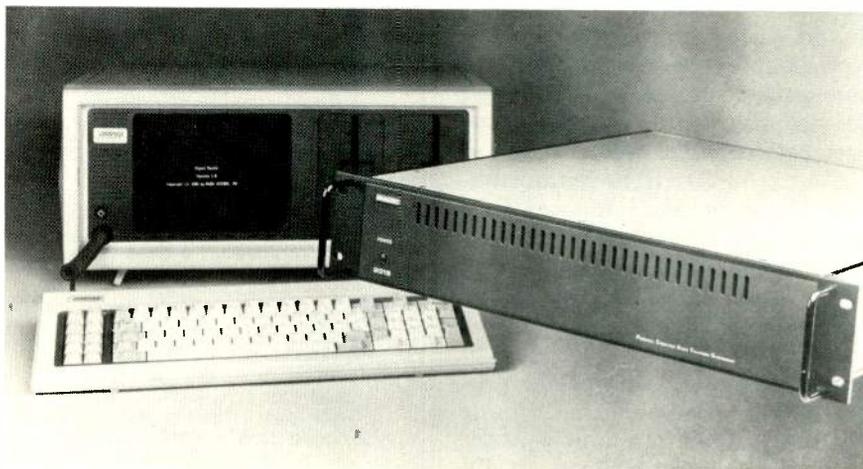
Beyond economy, which seems to have sprung up in the last few years to become one of the most important "features" a manufacturer can provide to the broadcaster, expanded features and computerization are important. At least supplying the correct I/O ports for computers is now a common request. In addition, portability is a current trend and there appears to be no immediate end in sight.

Tektronix (3214), always a good measure of current directions for test and measurement products, will unveil a complete new line of automated video measurement equipment for component television gear in NTSC and PAL. Also

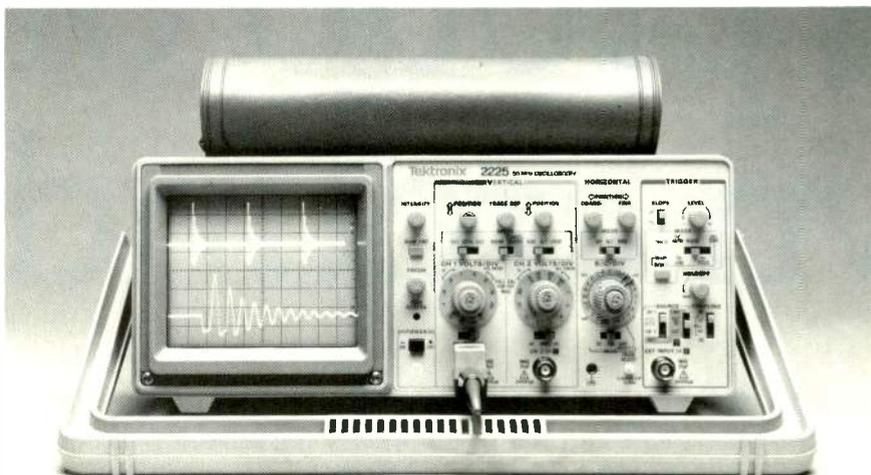
new will be the 1705 spectrum analyzer for ENG applications using satellites. The Model 1735 dual standard waveform monitor and the 1480F30 noise measurement kit using tangential technique complete the string of new products. The existing range of products includes several levels of waveform/vectorscope combinations, the 751 BTSC aural modulation monitor/decoder, and the ECO-170A synchronous change-over unit.

An innovator in recent years has been Videotek (3316). Introducing the TVM-620, the company offers a combination waveform monitor/vectorscope (also available in PAL). Other new products include the VPH-360 SCH phase indicator, the DM-140S stereo television demodulator and the AVM-19S color monitor. The complete line of high resolution color monitors, sync generators, demodulators and RGB display monitors will be exhibited. Other featured products include distribution amplifiers and audio program monitors.

Full service test and measuring products are available from Leader (2727). Unveiling several new products this year, the company will show the LBO-5860B low cost waveform monitor without line selection and the LCG-410 video test signal generator with additional LCG-420 plug-in units. A new battery powered LCG-409



The Magni 2015 Personal Computer aided television synthesizer will be demonstrated.



Tektronix's new oscilloscope, the 2225 will anchor the company's T&M display.

video test signal generator with built-in modulator will also be introduced.

Sound Technology (3328) plans on showing its MTS analyzer/monitor to be used with the 3100 programmable audio generator for remote testing of transmission lines. New software packages will also be available, with IBM compatible computers.

Magni Systems (2827) has shown itself to be on the forefront of computerization as it offers the 2015PL programmable test signal generator offering a broader range of test signals than the previous model 2015. Magni will also feature the 1515 test signal generator providing component and NTSC composite signals. Combination waveform and vector monitors and test signal generators will be demonstrated.

Spectrum analyzers will make an impact at this year's show, with new offerings from several companies as well as updates on existing lines. Anritsu (2444) plans to debut the new 2 GHz portable spectrum analyzer, microwave spectrum analyzer, and field strength meter. Also on hand will be other spectrum analyzers and signal generators. Avcom of Virginia (2425) will make its premier showing at the NAB with the PSA 35 portable spectrum analyzer, the STA-70D SCPC test analyzer as well as audio receivers and accessories.

Belar (3347) will demonstrate a new line of high performance TV stereo monitors, the TUM-100, -210, and -220 for BTSC stereo. Also showing the full line of AM and FM stereo monitors.

Bird Electronic (3472) is sched-

uled to introduce two new single socket/double socket directional ThruLine wattmeters, along with the full line of instruments for RF power measurement. Electronic Systems (2650) will introduce the model 1150 digital peak meter and will also show the RTW peak and phase meters.

Rohde and Schwarz (3491) will show complete product lines including sideband analyzers, digital TV oscilloscopes a new family of synthesizer TV demodulators and the VMS-100 video/RF quality-monitoring system.

Narda Microwave (2545) plans to unveil the 8520 field/power density meter featuring a single probe that can measure both the electric and magnetic field components of a signal. For measuring nonionizing radiation from video display terminals, Holaday Industries (2737) is exhibiting new instrumentation along with its HI-5000-SX broadband exposure measurement system. **BM/E**



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When you buy our products, you buy our name and the experience that comes from delivering over 600 high power UHF antennas and from our being the leading supplier of circularly polarized VHF antennas.

Our extensive line of high quality broadcast equipment includes: VHF, UHF and FM antennas; coaxial and waveguide diplexers; motorized switches; rigid coaxial and waveguide transmission line; custom RF systems including the Opto-SX™ for VHF

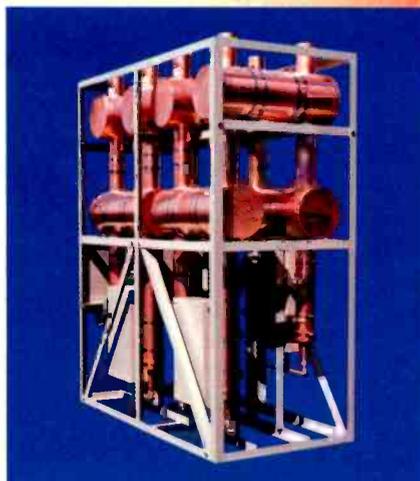
switch-less RF routing; and Magic Tee switching for UHF RF routing...compatible with any broadcast transmitter.

Along with our broad range of products and services, we continually further new technologies in our component designs. Plus, all Dielectric systems are manufactured to satisfy domestic (FCC) or international (CCIR) standards.

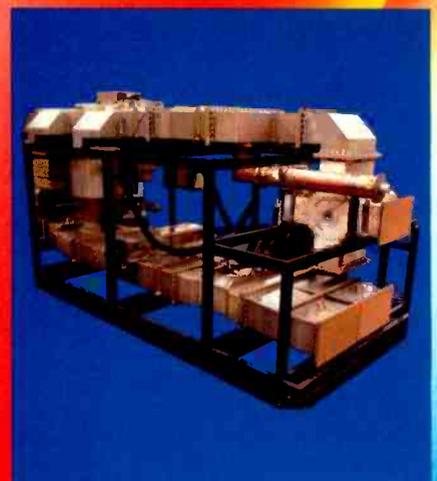
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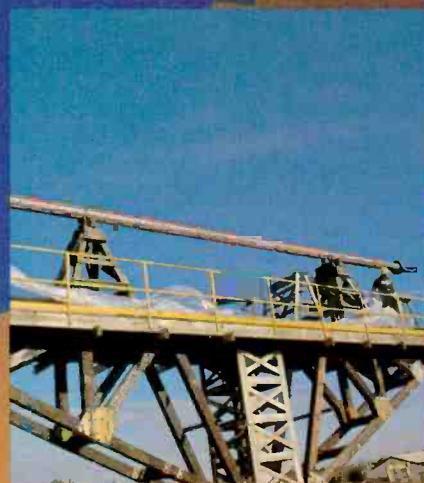
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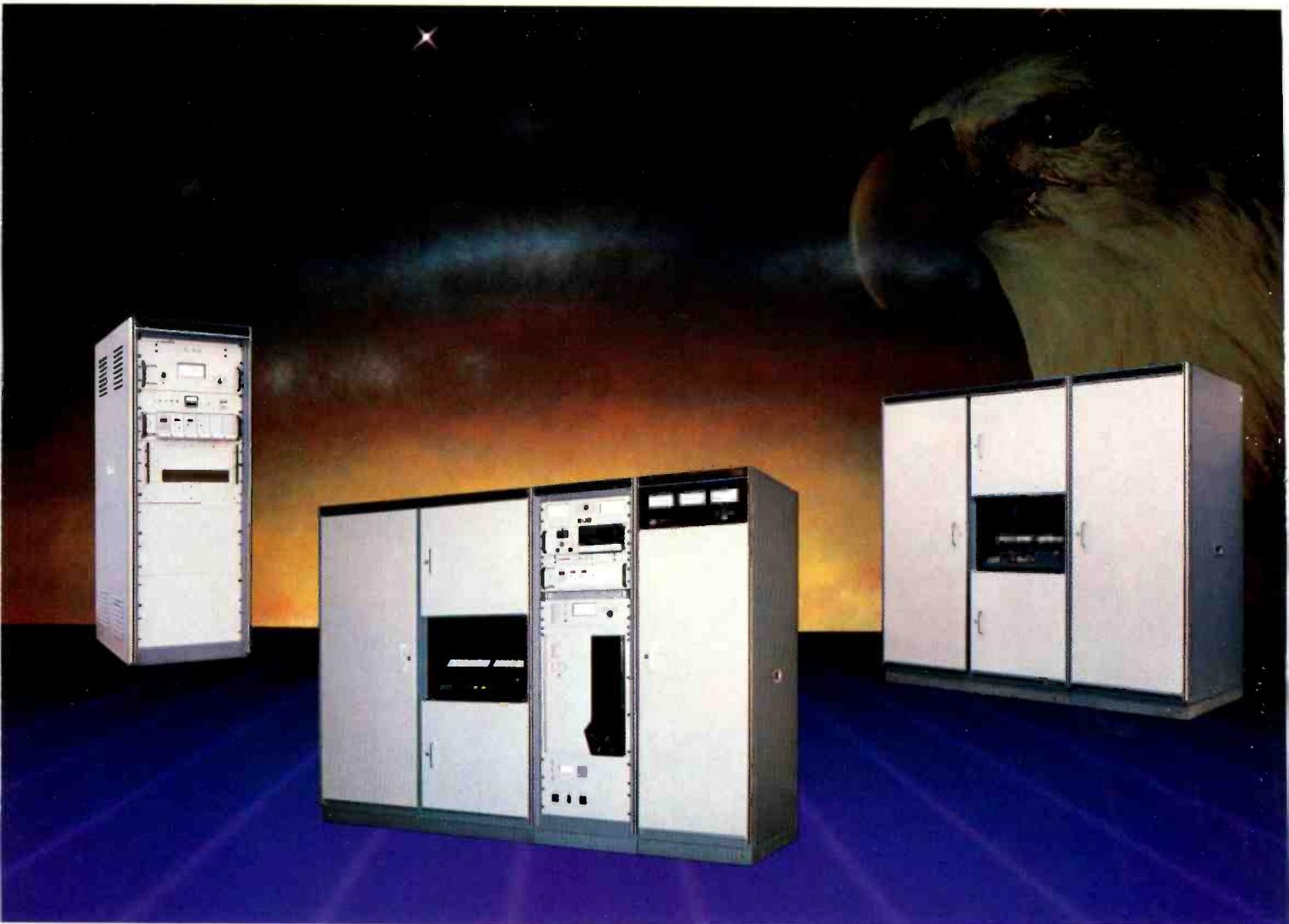
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See us at NAB, Booth #3521

Guide to EXHIBITORS

AARMOR CASE 2781

For its first appearance at the NAB, Aarmor will introduce the Rack Pod, a molded electronics rack providing six or more rack spaces, along with its line of shipping and handling cases for all types of audio and video equipment.

ABEKAS VIDEO SYSTEMS, INC. 3527

Will show the A62 digital disk recorder with hard disk storage, real-time random access, and precise single field/frame recording for animation or video disk mastering applications. Also on exhibit will be the A53-D 3D digital special effects system and the A52 two-dimensional digital special effects system with 36 on-line effects, including 12 that are preprogrammed.

See ad page 109

ACCU-WEATHER, INC. 2529

Will introduce the Front Door 600, an IBM PC- or compatible-based system for archiving Accu-Weather's satellite-delivered graphic images, and a new pricing schedule for the Accu-Data weather database. Weather graphics, satellite and radar images, and new high-resolution images will also be on exhibit.

ACOUSTIC SYSTEMS 2786

Will exhibit one of its line of modular audio studios and broadcast booths. The booths are portable and reusable.

ACRODYNE INDUSTRIES 3521

Will introduce the TRH/30KA, a single-tube 30 kW VHF television transmitter, and new 25 kW and 30 kW UHF television transmitters featuring the Thompson-CSF TH-563 tetrode. The 25 kW model, TRU-25KVC, will be on display. Also on exhibit will be the LU/400 400-watt VHF broadband solid-state amplifier for TV transmitter upgrades and IPA retrofits and the TLU/200 200-watt solid-state UHF TV transmitter.

See ad page 18,100

ADAMS-SMITH 2495

Will show new software for their high-end 2600 A/V audio/video editor to make it an audio for video editor that both accepts and generates edit-decision lists. Also showing the new Zeta Three synchronizer for audio, video, and MIDI (musical instrument digital interface).

The Zeta Three allows production operations to synch audio recorders to video recorders and generate MIDI

synched to SMPTE time code. Other featured products include the model 2600 CC compact controller audio for video editing system, and system 2600 time code and synchronizing modules.

ADC TELECOMMUNICATIONS, INC. 2819

Will have a complete patch bay kit for the "do-it-yourselfer" that offers the same features as ADC's prewired patch bays, also the SAILS kit, a complete kit for fitting almost any patch bay with Self-Adhesive Identifications Labeling System. ADC will also show its line of Pro Patch audio and video patch bays as well as VAMP-video audio modular patchbay, plus its full line of patching accessories.

ADELPHON 234

In its first NAB appearance, will introduce a working prototype of RAPID, a new kind of rapid deploying portable mast, not hydraulic or pneumatic, which extends to 160' from a 1000 pound, 3' unit. The Landmark self supporting tower will also be presented.



ADM TECHNOLOGY 3266

Will introduce three new audio products: the RM1083 rackmount modular 8x3 mixer with eight mic/line inputs, full EQ, and stereo panning; the RM1168, an audio mix-minus matrix for multiple SNG feeds which includes eight outputs and 16, 24, 32, or 48 inputs; and the DA26 stereo 1x6 or monaural 1x12 distribution amplifier with optional VCA control. Also on view will be an improved version of the BCS3643-PC automated stereo television console with audio router interface; the S/TV 24 stereo television console; the Post-pro 12 video editing console and VP1603 video post-production console, both with editor/switcher interface; and the RM1010 stereo VTR track selector.

ADVANCED DESIGNS CORP. 2419

Will feature the new DOPRAD II Doppler weather radar system with 768H x 484V x 8 resolution and completely new software utilizing pulldown menus, windows, and icons. Input is via mouse or keyboard. Radar features include an optional touch membrane radar control panel, dual display RHI/azimuth, secot scan, and beam path analyzer. The DOPRAD II is data service, RRWDS, and LPATS compatible with flexible graphics capabilities. Other products on display will include the DOPRAD I Doppler retrofit system for existing antennas; the DOPRAD II display unit; and the RCD-1000 remote NWS RRWDS color weather radar display system.

ADVANCED MICRO-DYNAMICS 2672

First time exhibiting at NAB. From its line of transmitter remote control systems will have new models offering multiple site operation and communications options including subcarrier and dialup. The CDA-4 composite distribution amp will also be new.

ADVANCED MUSIC SYSTEMS-CALREC 2825

AMS will be highlighting its AudioFile hard disk-based digital recording system with updated software that now provides for sync recording, punch in/punch out, remote machine control, digital interfacing with other PCM equipment, and other features that were previously unavailable. AMS will also display their full range of digital processors.

Calrec will unveil the Assignable '86 broadcast console capable of controlling up to 128 channels and 12 stereo groups with total instant reset and floppy disk back-up of system status memories. Calrec microphones and the Minimixer will also be exhibited.

AEG 2700

Will unveil the Model S3217 10 kW single-tube FM transmitter. Also on view will be the M-20 and M-21 two-track reel-to-reel

audio tape recorders, including models with center-track time code facilities; the M-15A 32-track reel-to-reel ATR; the line of solid-state FM transmitters from 100 W to 1.5 kW; the automatic coaxial change-over, self-sustained up to 1 kW; and the stereo/SCA encoder.

A.F. ASSOCIATES 3170

New products on display will include the AVS "ADAC" four-field digital standards converter with adaptive motion interpolation and digital comb filtering; a computerized station automation system from Pegasus; the Radamac EPO line of servo-controlled camera mounting systems; and a production version of the Audix AAT-3000 digitally controlled, assignable audio mixing console for broadcast applications. Also on display will be AVS 6500 Series standards converters; the Marconi B3410 telecine; Marconi "Newshawk" portable satellite earth station; Pegasus automated compilation systems for cable or broadcast commercial reels; Audix "Access" digital communications system; and custom turnkey systems designs for broadcast, post-production, corporate and cable facilities.

See ad page 45, 105, 155

AGFA-GEVAERT 2815

Will highlight its new 192-HGX Hi-Fi half-inch video pancake tape with improved S/N chroma and luminance performance and the PE 649 premium oxide audio cassette tape with extended headroom in both low and high frequencies. Also on display will be Agfa's Broadcast Plus U-matic and Studio Performance half-inch VHS video cassette tapes; Magnetite 62, PE 621/827, and PE 619/819/1219 audio cassette tapes; and PEM 469 and PEM 468 studio mastering tapes.

AKG ACOUSTICS 2454

New this year will be the C-522 stereo ENG microphone, an X-Y stereo microphone, and the ADR 68K digital reverb. The full line of AKG mics, headphones, headsets, phono cartridges, stands, and digital delays and reverbs will also be displayed.

See ad page 169

ALAMAR ELECTRONICS 2582

Will exhibit the MC-1050 multichannel automation system for multiple tape spots; the RCMP-5 remote control panel for integrated SMPTE/EBU network controlling devices; the Auto-Cart single-channel automation system; the Copy-Cart net delay record/playback automation system; the SC-2000 remote controller for all broadcast equipment using SMPTE/EBU control network; the Media Manager database for cataloging film and videotape media; and the Schedule Manager and Traffic Manager maintenance software packages.

ALDEN ELECTRONICS 2759

Booth will feature live demos of the new C2000C remote weather radar system, which collects precipitation data from several NWS radar sites and overlays the various intensities on a regional map background. Features include ground clutter suppression, zoom, sweep lines, and multiple memory. The new SCS transmission system developed by United Video and implemented by Zephyr Weather Information Service will also be demonstrated.

ALEXANDER MFG. CO. 2924

Will introduce new battery belts available in 4 amps and 7 amps, 12V and 32V. Will also exhibit ENG batteries for cameras and recorders, battery analyzers, and battery chargers.

ALIAS RESEARCH 2484

Will introduce a new version of its 3D modeling and animation system that implements multiple cameras, visual "flight paths" for animated objects, and enhanced spline-based modeling facilities. The incorporation of the Pixar image Computer has increased rendering speeds as much as 50 times. The original Alias/1 3D graphics system will also be exhibited.

ALLEN AVIONICS 2724

New products will include low-profile L.C. filters, tubular filters, mini-size L.C. filters in TO8 package, delay lines for video with zero signal loss, variable gain video amplifier, and surface-mount delay lines. The full line of video networks (preemphasis and deemphasis), video delay lines (switch variable and fixed), video filters, hum eliminators, and rackmountable variable delay lines will also be shown.

ALLIED BROADCAST 3414

Will introduce Media Touch, a computerized, touchscreen system designed to control any or all parts of a broadcast operation, radio or TV. Also featured will be the Telnox radio/telephone system, Titus Technical Laboratory's "Last Word," Advanced Micro Dynamics' remote control, and the Audiometrics AMCD5 1000A 100-capacity compact disc player.

ALLIED TOWER CO. 3432

Will feature its line of towers for AM-FM, TV, microwave, and two-way applications, and its equipment shelters.

ALPHA AUDIO 100-102

Will introduce a new digital audio storage interface for The Boss 8400 automated audio editor. The company's Automation Div. will feature The Boss audio editor, and the Acoustics Division will display its line of Sonex and Sonex I, Soundtex, Acoustilead, and 703 fiberglass acoustical treatments.

See ad page 81

No, we won't guarantee a new AVC Century Series switcher will win you awards. But by effortlessly handling your most demanding tasks a Century Series AVC can free you to concentrate on what really matters—award winning production.

Century's new SuperSTAR™ Memory system simply overpowers production problems. Its unmatched ability to manipulate, memorize and recall reduces complex tasks to a few button pushes.

Greater keying power and flexibil-

ity give you the kind of creative command you've dreamed about. Each M/E has three *full-capability*, independently maskable keyers and a time-saving Key Memory. Virtually any transition imaginable between keys and backgrounds is possible. You'll find yourself creating effects on the Century, rather than going off-line.

So if you're feeling compromised by your switcher, take a look at the new AVC Century Series. You'll discover capabilities other switchers don't even offer as options. No mat-

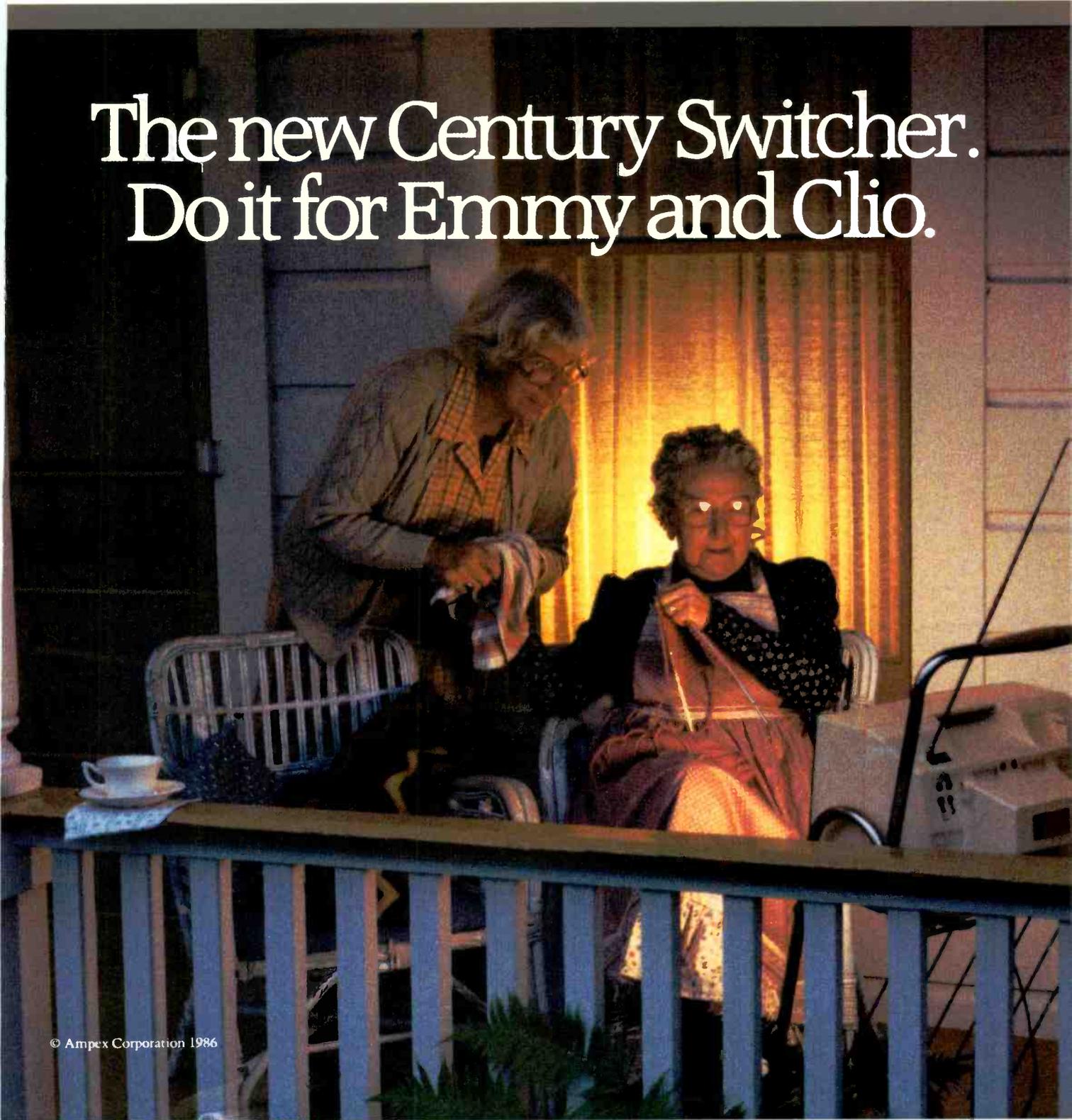
ter which model you choose, a Century Series switcher will be a powerful complement to your creativity.

Atlanta (404) 491-7112 Chicago (312) 593-6000
Dallas (214) 960-1162 Los Angeles (818) 365-8627
New Jersey (201) 825-9600
(In New York (212) 947-8633)
San Francisco (415) 367-2296
Washington, D.C. (301) 530-8800
Canada (416) 821-8840

Circle 164 on Reader Service Card

AMPEX

The new Century Switcher. Do it for Emmy and Clio.



ALPHA ELECTRONICS 2788

Will have for the first time Plumbicons from Amperex. Offers all kinds of replacement equipment for TV cameras, plus transmitting tubes.

ALPHA VIDEO & ELECTRONICS 2524

Will show its Alphasized type 5 U-matic VCR and type 6 VTR with interval time code generators, as well as its IFB systems.

ALTA GROUP 2502

The Alta Group will introduce Centaurus, a dual-channel TBC/frame synchronizer for A/B roll editing. Options include a plug-in still-store module that can store up to 50 video pictures per disk pack. Also present will be Pyxis, the dual-channel digital production system, and Cygnus, a single-channel digital production system with digital picture freeze and infinite window time-base correction.

ALTRONIC RESEARCH 146

Will introduce a new 25 kW air-cooled dummy load, a control box, and new self-contained heat exchangers. The line of water-cooled dummy loads (5-200 kW) and peripheries and fixed film nonreactive high-power resistors (1-250 kW) will also be shown.

AMBER ELECTRO DESIGN INC. 2426

Introducing several enhancement products for the model 5500 programmable audio measurement system, including a new high-performance package that allows system THD measurements below 0.0005 percent; a high-speed plotting system with nonvolatile storage of up to 36 256-point plots in its internal memory; and new measurement modules including DC measurement, DC generation, and utility delay/relay outputs. PC applications software and a PC instrument controller for use in conjunction with the 5500 will also be introduced. The 3501 distortion and noise measurement system will also be shown with its stereo package designed for BTSC, AM, and FM stereo measurements.

AMCO ENGINEERING 3294

Featured will be: communications consoles with styling options; computer desks and desk-top cabinets; EMI (electromagnetic interference) cabinets to assist in complying with FCC regulations; a heavy-duty aluminum structural system for enclosing audio equipment; and blowers and fans.

AMEK CONSOLE, INC. 2558

Will show their new Classic broadcast/post-production console, featuring eight mono or stereo subgroup buses, two dedicated stereo groups, and up to 24-track monitoring. The new Amek

G2520 multitrack mixdown console will also be shown. Other products will include: the Amek APC1000 large-architecture console for large-scale post-production, featuring dynamic and synchronous reset on all pots and switches; the Amek BCL broadcast/post-production console system, available in a number of different chassis and modules for various applications; the TAC Scorpion, a cost-effective multiple-configuration console available for the first time with stereo line-input modules; and the new X frames with self-contained patch bays.

AMERICAN STUDIO EQUIPMENT 2440

In its first NAB appearance, will introduce lines of grip and electrical equipment ranging from century stands to 20x20 overhead units to carmounts and a camera wheelchair dolly.

AMHERST ELECTRONIC INSTRUMENTS 2622

New to NAB will be the AM-2100, an intelligent controller or TBC with built-in time code reader and machine control. Brand new are a PC-based editing software package, for use with the AM-2100, plus a frame store add-on to the 2100, and the CTX, an AM-2100 without a TBC, which also can be used with the editing software.

AMPEREX ELECTRONIC CORP. 3238

Will unveil four new 604x576 pixel frame transfer CCD image sensors: the NXA1011 for three-chip color or single-chip mono PAL version cameras; the NXA1021 for single-chip PAL color cameras; the NXA1031 for three-chip color or single-chip mono NTSC cameras; and the NXA1041 for single-chip NTSC color cameras. The established line of diode-gun and triode gun camera pickup tubes in 2/3-inch, one-inch, and 1 1/4-inch versions will be shown, along with the line of high-efficiency klystrons and tetrodes.

See ad page 47

AMPEX AUDIO-VIDEO SYSTEMS DIV. 3108

New at NAB this year will be the compact, low-cost AVC Series switchers for mobile studios, small broadcast facilities, off-line editing suites, public access facilities, and educational industrial applications. Also making their NAB debut will be the premier, AVC Century Series switchers available in two or three mix effects versions with 16 or 32 video inputs for the most demanding high-end post-production and major broadcast markets.

Ampex will also introduce the ACE computerized editing system for upper- and mid-range productions, as well as the

low-cost Graphic Composition/Storage System, which combines key capabilities of still store, video graphics, character generator, and keying system into a single, compact system.

New Betacam SP products include the CVR-5 camcorder VTR with full transport control, viewfinder playback, and confidence playback, which can be combined with Ampex cameras to create complete camcorders; the CVR-35 field portable VTR; and the CVR-75 studio VTR for ENG, EFP, and studio applications with full record/play/editing capability, built-in time base corrector, and Ampex's AST system for broadcast-quality still frame and slow motion.

There will also be several new enhancements introduced for Ampex's ADO digital effects systems, the PictureMaker 3D animation/modeling system, and one-inch Type C VTRs. Also on display will be the ACR-225 digital video cart spot player and Ampex's integrated family of professional TV equipment including Betacam recorders, players, cameras, and camcorders; one-inch Type C VTRs and video processors; ACE editing systems; ADO digital effects systems; AVA-3 and ESS-3 video graphics and storage systems; the PictureMaker 3D animation system; and AVC and 4100 series switchers.

See ad page 103

AMPEX MAGNETIC TAPE DIV. 3108

Will introduce Betacam SP metal particle videotape, plus a 19mm digital videotape. Also on display will be the line of one-inch professional videotape; 3/4-inch and half-inch professional broadcast videocassettes; Grand Master professional audio mastering tape; open-reel and cassette professional digital audio mastering tapes; and professional mastering tape.

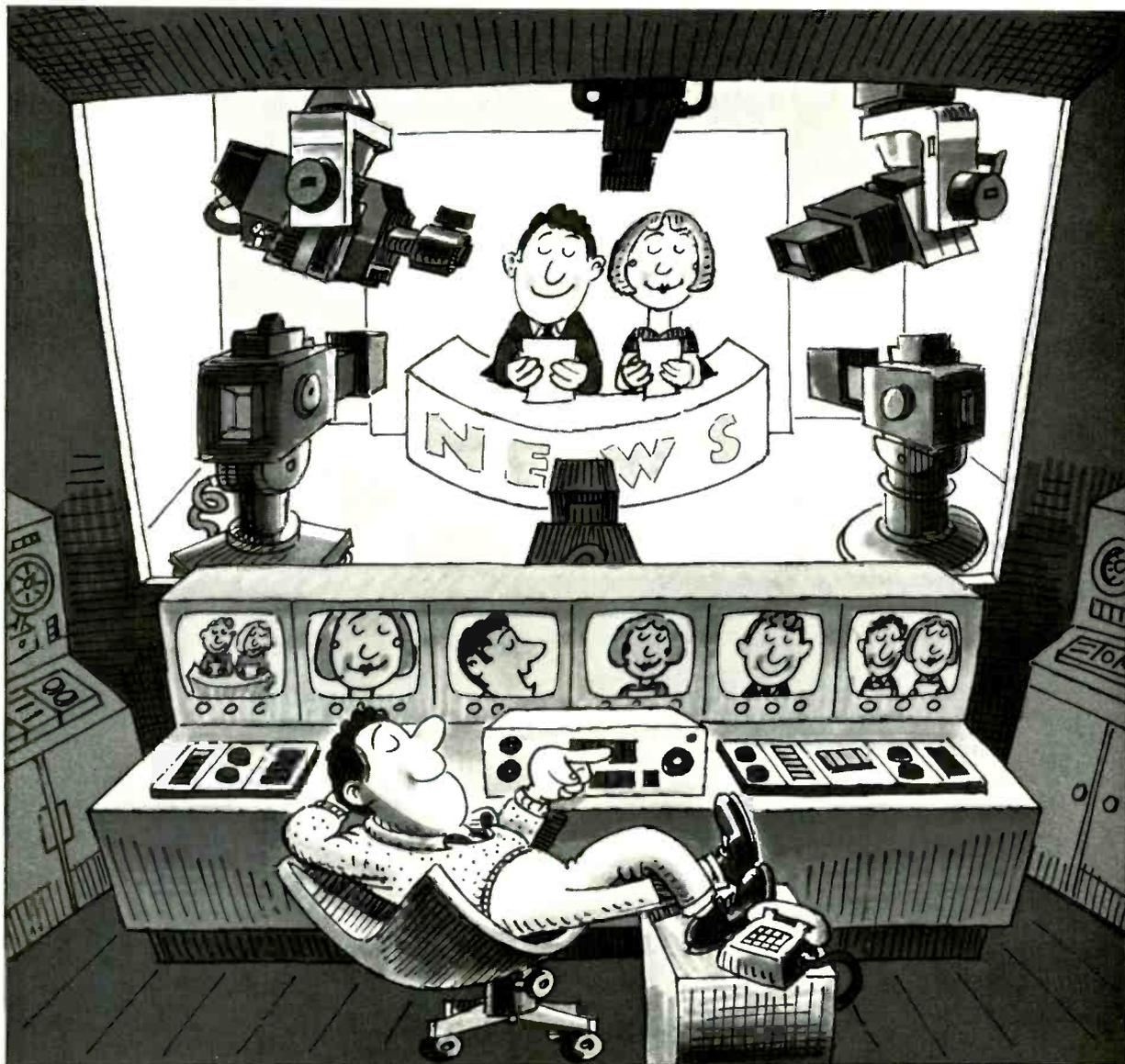
See ad page 86-87

AMTEL SYSTEMS 2820

Will introduce the Transform-1 post-production management system, which enables productions shot on film for final film release to be edited on standard videotape editing controllers. It contains a full EDL management program with list cleaning, trace, and auto assembly optimization. The complete line of SMPTE time code generators, readers, translators, character inserters, audio-to-video tape synchronizers, routing switchers, and clock equipment will also be shown.

AMX CORP. 2908

A new exhibitor, AMX will introduce its remote control systems for all purposes, including tape machine control, lighting, and volume levels. Components in the SX series control systems include the SX-16 + programmable relay controller, SoftWire multiplex control panels, and TX-08 to TX-64 wireless (RF) control panels.



MULTIPLE CAMERAS. ONE OPERATOR.

Impossible? Not if your cameras are mounted on EPO Servo-Controlled pan and tilt heads. These extraordinary, labor-saving devices, which first found favor in legislatures where remote-controlled, unobtrusive coverage was a key factor, are now the basis for complete remote-controlled news studios.

Just look at these outstanding features:

- Up to 500 preprogrammed positions per camera, including control of iris and black levels
- Programmable fade modes that provide smooth transition from preprogrammed shots
- Ability to zoom and focus
- Unobtrusive
- Can be operated via telephone lines or microwave in a remote studio away from the main studio location
- Wide range of pan and tilt heads, for full studio cameras with teleprompters to ENG type cameras
- Wide range of control options, from panels with multiple-shot memories to simple joy stick remote controls.

It's flexible, affordable—and it's sold and serviced exclusively in the U.S.A. by A.F. Associates.

THE RADAMEC EPO REMOTE CAMERA CONTROL SYSTEMS

Your news show's bottom line will never look so good.



A.F. ASSOCIATES INC.

ADVANCED SYSTEMS AND PRODUCTS FOR THE VIDEO INDUSTRY
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10650 SCRIPPS RANCH BLVD SUITE 200 SAN DIEGO CA (609) 530-2970

**NAB
BOOTH
3170**

ANCHOR AUDIO, INC. 2432

Showing self-powered monitor speakers and battery-powered sound systems and intercom systems.

ANDIAMO 2609

Will show a new 21-inch addition to its Aerospace line of equipment cases for all makes of camcorders, cameras, and audio gear.

ANDREW CORP. 3098

Will unveil a 4.5m C/Ku-band receive package featuring the ASR-300 receiver and introduce to the NAB a 4.6 m Ku-band uplink antenna. They will also be actively demonstrating custom pattern development of UHF antennas and showing their range of UHF antenna system products including circular waveguide, as well as transmission line products for both TV and radio including a new 1 1/4-inch cable.

ANGENIEUX CORP. OF AMERICA 3020

New lenses will include the 40X9.5 9.5 mm to 380 mm, f/1.3 field lens for 3/8-inch cameras; the 40X14 14mm to 560 mm f/1.9 field lens for one-inch cameras; the 40X18 18 mm to 720 mm f/2.5 field lens for 1 1/4-inch cameras, all with heater and extenders; and the 14X7 7 mm to 98 mm f/1.6 ENG/EFP lens with 2X extender and macro. The line of ENG/EFP, studio, and field lenses for all camera configurations will also be displayed.

ANRITSU 2444

Will introduce a new 2 GHz portable spectrum analyser, microwave spectrum analyser, and a field strength meter. Also on hand will be 2 spectrum analysers, video systems analyser, and a signal generator.

ANTON/BAUER 2600

Company will preview the new Lifesaver MP-4 and MP-8 microprocessor series of charging/diagnostic evaluators for nicad batteries. The new Snap-On Gold battery mounting bracket will be introduced. Other products on view will include the line of Lifesaver nicad battery chargers, ProPac 13 V/14 V Snap-On nicad batteries, ProPac 90 VTR battery, silver-zinc batteries, Ultralight portable lighting system, Power Strap battery belt, Mobile Fast Charger, and compact CCUs.

See ad page 107

ANT TELECOMMUNICATIONS 3028

Will demonstrate a complete Telcom C-4 noise reduction system.

See ad page 85

ANVIL CASES 2706

Will describe its new pricing schedule, which incorporates many new designs,

configurations, and styles of its ATA and MACC case lines. The line of EIA rackmount cases and containers, including new specialized variations, and new and improved Anvilite tripod cases in numerous sizes will also be featured.

APERT-HERZOG 2931

Will feature the Model H and Model H2 digital TBC/synchronizers, the A2 digital frame synchronizer, the 1x24 video DA, The Step audio/video memory device, and the VBB-1 video DA in a chip.

APHEX SYSTEMS 2816

Will demonstrate the new Model TBA ultralinear FM stereo generator, featuring extreme temperature stability, high separation, and superior sonic quality. Other featured products will include the Compellor automatic gain control and compression, the Aural Exciter psychoacoustic audio enhancer, and the Studio Dominator multiband peak processor.

ARBEN DESIGN 2675

Will introduce a new line of electric rotating turntables for product display, the Graphics Cart, and the fifth edition of its set design catalog. The established line of Lebenset modular set design systems, Cyc-Wedge hard cyclorama system, and 3D Lettersets will also be featured.

ARRAKIS SYSTEMS, INC. 2742

New this year is the deluxe, medium-priced modular audio console line with extensive production capabilities, available in a variety of mainframe sizes. The 10,000 series consoles offer such modular options as compressor/limiters, equalization, and remote control. Arrakis's standard console line will also be featured, as will the 1100-A and 1100-B audio routing switchers, and also Modulux studio furniture.

ARRIFLEX CORP. 3553

Will introduce new ARRI fresnels in 300W, 650W, 1000W, 2000W, and 5000W fixtures; a 600W Arrilite video camera light; and new Arrilite kits in several sizes. The company will also display a full range of ARRI HMI lights; ArriSun 5 and 12 PAR lights; ARRI time code for film; a compact VAFE; 35BL-4, 35-3, and 16SR-2 film cameras; black-and-white and color assists; and the Lightflex light controller for video cameras.

ARTEL COMMUNICATIONS 2903

New fiberoptic communications products will include the WDM-3001 single-mode optical wavelength division multiplexer, which allows transmission of two independent signals over a single fiber by using separate optical wavelengths; the RPT-3013/3015 fiberoptic video transmission repeater modules, based on a longwave laser system for increased per-

formance and reliability; and the T/R-3158, 3164 and 3175 microwave subcarrier frequency modulator cards. The company will also display its CG203 ultra high-resolution graphics modem and FiberWay 100 Mbps digital fiberoptic local area network, among other products.

ARTRONICS 104

The Video Graphics System/VGS Turbo xi, a new high-performance 3D modeling and animation system with 24-bit paint, will make its NAB debut. Options include flash-grab and eight-bit paint with AniMagic real-time 2D animation. The Video Paint Library/VPL high-resolution paint system with 1200 frames of still storage will also be featured.

ASACA/SHIBASOKU 3278

Will show the ADR-5000 magneto-optical video disk recorder, and a new line of high-quality monitors and signal generators, a full complement of HDTV monitors, test generators, and still stores, and the Asaca automated videocart-playing system for Beta and M-II will also be featured.

See ad page 42, 161

ASSOCIATED PRESS BROADCAST SERVICE 3395

Will describe its broadcast news and programming services for radio and television stations.

ASSOCIATED PRODUCTION MUSIC 2650

Will add two new music libraries on compact disc—"Inspiration" and "Classical Fusion 3"—to its established catalog of music libraries and production music.

ASTON ELECTRONICS 223

The Aston 4 high-resolution production character generator, featuring antialiased characters, will be shown.

ATI-AUDIO TECHNOLOGIES 2508

New this year will be the Vanguard Series BC12DSL 12-mixer, dual stereo output audio board. Other products on view will include the MatchMaker and Disc Patcher interface amplifiers, the Emphasizer audio processor, and the MicroAmp and Encore series of mic, line, phono and monitor amps, audio DAs, and audio switchers.

See ad page 114

AT&T COMMUNICATIONS 3212

Will show the System 75 digital private branch exchange and the Merlin ACD, a low-end phone system, combined with automatic call distribution. Telemarketing agent support software, a home banking video terminal, and a voice response system will also be featured.

AUDICO 2720

Will introduce new M-II, Betacam, and



New.

The First and Only. Anton/Bauer introduces the next generation battery/charging system.

The new Anton/Bauer microprocessor series features:

- Three times the control systems of any other microprocessor charger... a quantum leap in reliability.
- Diagnostics that identify battery problems and specific cell deficiencies.
- Programmable for virtually all new battery technologies under development.

See the new Anton/Bauer microprocessor based battery/charger/mounting system at NAB... Booth 2600... or write for details.

anton/bauer

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of the video industry.*

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8 mm cassette loaders, reloaders, and rewinders. Also featured will be the line of videocassette tape loaders for U-matic, VHS, and Beta formats, and audio cassette loaders, rewinders, timers and labels.

AUDIO ACCESSORIES 2754

Will bring its custom and prewired audio panels, phone jacks, full range of patch cords, and patch bay accessories.

AUDIO BROADCAST GROUP 2581

Will introduce a line of human-engineered "on-air" and "multitrack" production systems with studio furniture incorporating consoles, recorders, tape cartridge systems, CD players, and other support equipment.

AUDIO DEVELOPMENTS/ PORTLAND INSTRUMENTS 2933

Introducing the 260 portable stereo shoulder-mount mixer with talk back, stereo monitor and four input channels. Will also exhibit a line of battery-operated utility audio components, including compressor/limiter, line monitor, high pass/low pass, and audio distribution amp.

AUDIO KINETICS, INC. 2506

Will show the Eclipse editor-controller for Q.Lock 4.i0 synchronizer, a microprocessor system offering four-machine editing, and the Pacer synchronizer, a chase synchronizer, synchronizer, generator, and resolver. The Master Mix System, TimeLink timecode, and Q.Lock Systems will also be shown.

AUDIO PRECISION 2452

New this year will be two audio testing modules for the System One IBM PC-based audio test system. The first new module measures dc voltage and resistance, providing variable dc output voltages and digital input and output. The second generates tone bursts, square waves, pink noise, and narrowband noise. The new "A-version" System One, capable of measuring amplitude on both stereo channels simultaneously, will also make its debut.

AUDIO-TECHNICA U.S. 2407

Will unveil the AT4462, a stereo portable field production mixer with two pannable mono inputs and two true stereo inputs, all transformer-coupled at mic or line level. A unique Modu-Comm circuit delivers program audio to the talent over existing mic lines. The full line of microphones, mixer/recorders, and accessories will be on view.

See ad page 80

AUDIO VIDEO ENG. CO. 2703

Will be displaying a line of hum stop coils.

AUDITRONICS

Will introduce the 400 Series audio production console available with 12, 18, or 24 input channels and four or eight outputs. Other features include full 16-track monitoring, submaster groups, stereo and mono capability, and a drop-in flushmount mainframe with a recessed trough and removeable plate for installation of user custom switching. Established products on display include the 200 Series of audio control consoles available with 12, 18, or 24 input channels and two outputs; the 310 Series of audio consoles with 12, 18, or 24 inputs and four or eight outputs; and the Stationmaster stereo on-air console with 8, 10, 12, or 14 inputs.

See ad page 73

AURORA SYSTEMS 3592

Will feature the Aurora/280, Aurora/220, and Aurora/75 digital videographics systems. The full-color 280 and 220 feature 32-bit image processing with storage throughout and two full picture buffers; the 220 is based on the IBM PC AT personal computer. The 75, also based on the AT, has a 128-color palette, 35 fonts, and optional frame-by-frame animation.

AUTOGRAM CORP. 2702

Will introduce the RTV-12 transformerless console with 12 Penny & Giles slide faders, VCA control, electronic switching, remote controllable channels, and optional interface card for live assist and logging. Also new this year will be the Autocount count-up clock/stop watch/lap time, which can be mounted in Autogram consoles or used as a standalone unit. The company will also show its line of six-, eight-, ten-, and 20-pot consoles with rotary and slide attenuators.

AVCOM OF VIRGINIA 2425

At its first NAB, will introduce the PSA 35 portable spectrum analyser, the STA-70D SCPC test analyser, SCPC 2000E & SCPC 500 audio receivers, along with accessories.

BAF COMMUNICATION 2544 & Outside

Will unveil the BAF 220, a 21-foot Ku-band uplink with Andrew's fully compliant 2.3 meter offset antenna. Also new will be the BAF 450, a 25-foot uplink for more production space. The 220 unit will be on display at Wolf Coach's booth inside. In addition, BAF will introduce a 1.4-meter flyaway package with high sidelobe performance, plus a multipoint, low noise threshold extension/receiver that adds 3 dB to any downlink signal.

BARCO INDUSTRIES 2577

Will introduce a new multimonitor controller for total remote control of up to 48 CVS Series video monitors. Other new CVS options will include a programmable

component input module, an input extension module, audio module, full remote control, and an automatic color analyzer. The microprocessor-based CVS Series will be displayed, along with the CTVM Series precision broadcast monitors, the CM 22 professional nine-inch high-resolution monitor, the PCD 3/ASMD 3 Series precision chroma decoders and automatic decoder switching systems, and the VSBM 1000 and VSD 1000 Series professional TV modulators and demodulators.

BARRETT ASSOCIATES 2768

New items will be the Jasoni "Tempsenz" temperature sensing unit for remote transmitter facilities and the Satellink interface for any or all of six local audio sources to satellite programming with built-in fading. The full range of audio and RF products will be featured.

BASYS 2913

Will introduce the BASYS System I, which is based on 80286 microprocessor technology and contains all the BASYS software functions although it is designed for smaller newsroom applications. Also making its NAB debut will be the new BASYS Archive System, a cataloging system for storing and retrieving scripts, tape/film/slide still store records, notes and background files provided by the wire services. It is available as a standalone unit or as an integrated module of a BASYS newsroom system.

See ad page 159

B&B SYSTEMS, INC. 2665

Will unveil the AM-3B CRT-based, real-time stereo audio phase monitor with visual and audible display of program phase, VU, and peak threshold levels; and half-rack mountable versions of its AM-2HR XY stereo phase monitor CRT display and IM-1HR Imagescope CRT-based stereo audio display. The entire line of B&B stereo audio phase monitors will also be exhibited.

BEAVERONICS, INC. 2703

Will exhibit the QMS modular line of master clock systems from Favag SA with a complete line of analog slaves and additional sub-master clocks. Also on display will be a full line of video switching systems and down-stream keyers.

BCS 2785

Will buy and sell used video production and post-production equipment.

BELAR ELECTRONICS LABORATORY, INC. 3347

Will demonstrate a new line of high-performance TV stereo monitors, the TVM-100, TVM-210, and TVM-220, for BTSC TV stereo. Also showing the full line of Belar AM and FM stereo monitors.

See ad page 170

The Abekas A42 Video Slide Projector

With the introduction of the A-42 Video Slide Projector, we revolutionized the still store business. Now, three years and 300 units later, we let our customers tell the success story of the A-42. The widespread use of the A-42 by networks and TV stations across the country has set a new standard for the still store in the television industry.

The overwhelming acceptance of the A-42 was no accident. It was a pioneering effort from Abekas that did the job—for the right price.

This small but powerful

system is the answer for those seeking upward mobility. The A42 comes in single- or dual-channel configuration. Winchester-style hard disks provide an on-line storage capacity of up to 1050 frames/2100 fields. A digital ¼" cartridge tape provides easy-to-handle, cost-effective, off-line storage. An optional library system gives the user simple yet sophisticated file management for up to 10,000 on-line slides.

Discover the reasons behind the ever-growing list of our customers. Find out from them why the A42 can't be topped when it comes

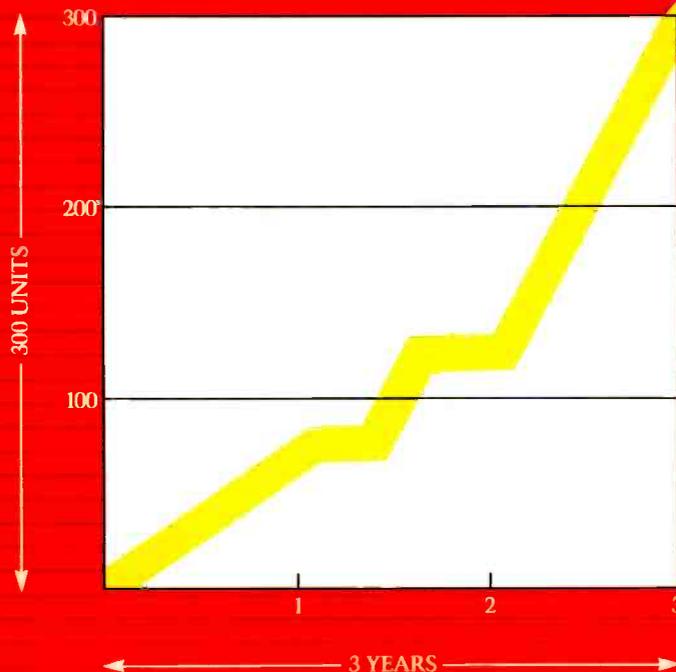
to outstanding reliability and price/performance. For details and a complete A42 customer list, contact us at: Abekas Video Systems, Inc., 101 Galveston Drive, Redwood City, CA 94063. (415) 369-5111.

Abekas
Video Systems, Inc.

Now Anything is Possible

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Setting the Standard in Still Stores



BELDEN COMMUNICATIONS, INC. 2926

Will introduce 12 new Lee lighting products, including eight diffusion filters, three reflectors, and one scrim. Lee resin camera filters, photographic filters, and lighting filters will also be on display.

BELDEN WIRE & CABLE 2651

Will feature the recently introduced 8723 22-gauge, dual-pair computer cable; 9307 and 9308 high-temperature conformable coaxial cable; and 8281 75-ohm video coax in six new jacket colors.

BENCHER 2568

Will introduce a new camera stand for heavier video cameras, up to 30 pounds, with quartz and incandescent lighting. The M-3 stand will also be exhibited, along with the Copymate line of camera stands for cameras up to 8 pounds.

BENCHMARK MEDIA SYSTEMS, INC. 2470

Will feature the MIA-4 microphone preamp card featuring 200 kHz ultra-wide bandwidth, a broad gain range of 75 dB, high output to +30 dBv, and switchable phantom power. Also to be shown is the DA-102 stereo version of DA-101. Other products featured include the System 1000, an audio interface and distribution system; the RPM-1 remote program meter card; and a series of differential interface devices (DIFs) to convert unbalanced audio electronics to balanced in/out.

BEYER DYNAMIC 2823

Will introduce several new microphones and headphones, including the M-700 cardioid microphone, MCE-10 miniature cardioid mic, MCE-80 cardioid condenser mic, MPC-40 low-profile condenser mic, DT 770 and DT 990 monitoring headphones, MC 740 multipattern condenser mic, MC 736-PV short shotgun mic, and MC 737-PV long shotgun mic. Also on display will be the complete range of dynamic, condenser, and ribbon microphones; a wireless shotgun diversity microphone system for ENG/EFP; DT 108 and DT 109 headsets (now available in black), and the line of headphones and related accessories.

BHP 2795

Will feature the new TouchVision nonlinear videotape editing system, with touchscreen control and separate "film-style" editing of multicamera picture and multiple sound tracks on up to 24 3/4-inch or VHS VCRs.

BIRD ELECTRONIC CORP. 3472

Will introduce two new single-socket/double-socket directional ThruLine wattmeters, along with the new 8575 5 kW forced-air-cooled, dry load resistor and the 8345-115 6 kW high-power attenuators. Also featured

will be the full line of instruments and components for RF power measurement, including ThruLine wattmeters, self-contained heat exchanger loads, water-cooled loads and air-cooled line terminations, and digital calorimeters. The RF Power Analyst line of wattmeters will also be on display.

BMI (BROADCAST MUSIC, INC.) 3078

Music licensing for the radio, television, and cable industries.

BOGEN PHOTO 2791

Will show its full line of tripods, fluid heads, video accessories, lighting stands, and quartz lighting.

BOGNER BROADCAST EQUIPMENT 3406

New this year will be the DUI Series side-mount UHF TV broadcast antennas, featuring reduced weight and reduced wind load with full performance. The line of lows, mediums, and high-power TV broadcast antennas, MDS/MMDS/ITFS microwave broadcast antennas, and mobile/cellular/paging two-way radio base station antennas will also be shown.

BOONTON ELECTRONICS 124

Will show its lines of modulation monitors, RF power meters, watt meters and RF test signal generators.

BOSCH 3140
See **BTS**

BOWEN BROADCAST SERVICE 2522

Will show LED switch modifications and other accessories for the RCA TCR-100 cartridge machine.

BRADLEY BROADCAST SALES 2556

Will show the Tecos "Echo" digital auto-answer telephone message unit, and show the Tecos-10 digital telephone hybrid.

BRINTEC CORP. 2478

The Abbott division will show its Safety Lock power distribution system, the Connector division will have various low-profile high-density connectors, and Brand-Rex division will present its lines of electrical cable.

BROADCAST AUDIO CORP. 2615

New products will include a self-contained six-mixer, rackmount audio console with front-panel cue speaker and metered level preselect. Also new will be a three-frequency headphone EQ option for Series II and IV consoles. The new Series V consoles feature integral digital timer and control room monitor panel with headphone EQ. Also new is an advanced audio processing system. The full line of audio consoles for radio and TV,

six-mixer console extenders, monitor amps, broadcast phono preamps, and DAs will also be on view.

See ad page 67

BROADCAST AUTOMATION 2697

Will introduce a BAI EC monitor, a cue speaker, and amp panel for the IGM EC automation system, plus EC carousel interfaces for SMC 250 carousels, and replacement circuit boards for the carousel. Also on hand will be the IGM EC automation system, including new Otari ARS-1000 tape decks, single play cart decks, and remanufactured SMC 250 carousels, as well as Otari tape decks and several new updates for other carousels.

BROADCAST DYNAMICS 2560

Will show a new range of TV prompting equipment made by Queword Aust.

BROADCAST ELECTRONICS 3226

Will introduce the final version of its DV2 solid state digital recorder/reproduce specifically designed for radio broadcast telephone call-in applications. Established products will include the complete line of FM broadcast transmitters from 100 W to 35 kW, the FX-30 FM exciter, FS-30 FM stereo generator, the AX-10 AM stereo exciter, AS-10 AM stereo modulation monitor, and the line of tape cartridge machines.

BROADCAST MEDIAL LEGAL SERVICES 2728

Will offer its packaged legal services.

BROADCAST MICROWAVE SERVICES (BMS) 3578

Will be showing their belt-pack, ultra-portable microwave system for stadium and convention coverage, and their complete line of microwave transmitters, receivers, antennas, and antenna systems for such applications as STL/TSL, intercity relay, and ENG/EFP. Also featured are Loran-controlled, high-gain helicopter microwave systems, and the complete BMS line of accessories such as duplexers, multiplexers, filters, and hot standby systems.

BROADCAST SUPPLY WEST 2743

Will introduce the Radix line of electronic components, featuring the TP500 phono preamp, DA1600 distribution amp, and TM500 studio timer. Also to be introduced is the Pro Base III turntable base for Technics turntables, offering superior isolation from feedback and vibration. Other featured products will include the Harrison Air 7 console, Ramsa WR 8616 console, and a line of audio processing gear.

BROADCAST SYSTEMS, INC. 3305
See **TOWNSEND BROADCAST SYSTEMS**

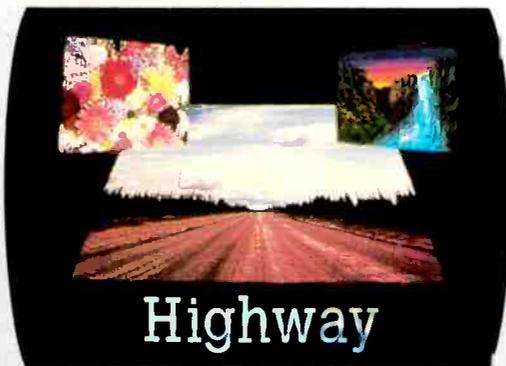
BROADCAST VIDEO SYSTEMS 2730

Will feature a number of new products,

Some of our Painter's exciting graphics.



Modified frames over embossed background



Perspective mapped video and painted frames



System base price

Dubner's DPS-1 Painter can store, paint and manipulate a frame of real video. All this and more for \$20,000.

Designed to meet the needs of broadcast, teleproduction, corporate and industrial users, the Painter also features: anti-aliased brushes, fonts and stencils; color and contrast correction; air,

solid, wash, fuzz, averaging, chalk, chrome, pattern and correcting brushes in 32 sizes with 100 transparency levels; millions of colors; X, Y, Z perspective mapping; 4-way color ramping; keying; posterizing; embossing; mosaic; magnify.

For more information on the DPS-1 Painter, call your authorized dealer.



DUBNER

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including the Electronic Visuals Model 4050 component waveform monitor; the Cox Model T8C component production switcher; the Cox 204 NTSC encoder with switchable RGB or component inputs; the BAL automatic video delay system; the Vistec NTSC Varicomb decoder; the VTR Leader clock and slate; and Ultra Key, a new video keying system providing variable key gain and linearity for clean keying of antialiased character generators and digital effects systems.

Also shown will be the line of component and composite downstream keyers, component and composite color correctors, component translators, and the full range of active and passive video delays and filters.

BRYSTON LTD. 2406

New at the NAB this year from Bryston are four models of a rack-mounted speaker crossover for splitting signals among the different drivers in speaker systems. The models, with two-way stereo and three-way mono capability, are: The 50 watt 2B PBX; 100 watt 3B PBX; the 250 watt 4B PBX; and the 500 watt mono 6B PBX. Also on hand will be the broadcast preamps BP 1 (with phono only), and BP 5 (with three high-level inputs and phono), and the BP 4 switching center, with four high-level inputs and a balanced output.

See ad page 78

BSM BROADCAST SYSTEMS 2668

Will feature the Modula and Mini Modula audio/video routing switcher systems; the ADA110DMT 1x10 audio DAs; VDA424 2x12 video DAs; ARS120 10x1 audio routing switcher; and VRS230 10x1 video routing switcher.

BTS BROADCAST TELEVISION SYSTEMS 3140

BTS is the joint company of Bosch and Philips, and will be presenting a comprehensive line of equipment and systems. These products include the introduction of a completely new type of ENG camera using Frame-Transfer CCDs for improved resolution and elimination of smear. New ENG Betacam systems will also be shown, including: KCB 1 recorder-camera system; BCB 10 Betacam studio player; BCB 15 Betacam studio player with dynamic tracking (DT); BCB 40 Betacam studio recorder/player; BBE 900 automatic editing control unit; BCB 21 Betacam field player; and BCB 25 Betacam field recorder/player.

Additional BTS cameras to be shown are the KCM 125 studio and location camera, KCF 1 lightweight production camera system, LDK 6 and LDK 26 automatic studio/field cameras, and the LDK 54 portable companion, compatible with BTS Betacam recorders.

Other products showing are: FDL-60 CCD telecine; FRP-60 film-reproduction programmer; FDGR-961B grain reducer; BCN 52/53 B-format VTR; BCN 41/51 VTR;

BCN 21 portable VTR; the R51ME R102ME, and R61ME compact production switchers; systems for master control switching and distribution switching; graphics systems, including the new High Resolution Output system, the FGS-4000 which provides interactive manipulation of two- and three-dimensional objects in a 3D presentation the FGS-4000 3D Illustrator, and the Off-Line Modeling System; the Thomson Vidifont Graphics V, Vidifont Viditext II, and the GraphicStore paint and library system; signal processing equipment; and monitors.

See ad page 20-21, 33

BW LIGHTING SYSTEMS 2418

Introducing the new Model 20.110 focusing broad light, constructed of aluminum and weighing 16 lbs. It uses the FHM lamp series, and includes c-clamp, safety cable, connector, yoke, barndoor, and gel frame. Also showing lighting distribution and control equipment, gaffer equipment, and their luminaires, cyclorama, and grid.

CABLEWAVE SYSTEMS, INC. 3489

Will introduce rigid coaxial transmission lines, and show their antenna and transmission line products, including microwave parabolic antennas, elliptical waveguide and coaxial transmission line, foam and air dielectric wellflier, RF connections and pressurization equipment.

CALAWAY ENGINEERING QUANTA CORP. 3128

Showing the Escort, an ATA styled heavy-duty case for maximum protection during transport, the Proline medium-duty case for local travel, and the Convoy for around-town transporting.

THE CAMERA MART 3040

Will feature its complete range of broadcast equipment, representing over 100 lines and including cameras, recorders, audio equipment, lighting, support equipment, processing, and post equipment.

See ad page 5

CAMBRIDGE PRODUCTS CORP. 2731

Will show mini UHF and TNC crimp and twist-on for their line of RF BNC and UHF connectors.

CANARE CABLE 2523

New items will include the MR202AT multichannel mic cable; the VAC-FB video patch cords; D202 multichannel data cable; and SV-4 multichannel video coax. Also, a full line of cables.

CANON USA 3300

Appearing at the NAB will be Canon's three newest additions to its line of high-performance ENG lenses, including: the

J8X6 with 2X extender; the J18X8.5 IRS with internal extender; and the lightweight (2.8 lbs.) J13X9 IRS type 2A. All are well suited for use with CCD cameras. Other lenses include the J15X9.5 with macrofocusing; the JS 18X8B-IE for field and studio cameras; and the J45X9.5B-IE for 3/8-inch tube cameras. Canon's full line of support equipment will include the MC 300 and MC 200 pedestals, SC 15 cam head, PR 90 field tripod, and CD 10 dolly. Also present is the COS-30 slow-motion shutter for ENG cameras.

See ad page 28-29, 39

CAPITOL MAGNETIC PRODUCTS 3345

Will show its product line, including the A-2 and the AA-4 broadcast carts.

CASCOM 2647

Will show its visual special effects library, including the Selecteffects 5 volume library library. All are produced on 35mm and transferred to tape.

CATEL TELECOMMUNICATIONS 2585

Will introduce several new products, including the D-850 baseband audio or video signal generator for monitoring or remodulation; the TVS-2000 TV stereo generator; the FMS-3000, a modular rackmount FM stereo system; the 3000 Series remote satellite receiver transmission system; Microwave Video Link, a solid-state FM microwave radio for short-range audio communications; and IR Links for transmission of T-1 data or video. Established products will include the Series 3000 broadband FM transmission system, the CTM-20 color TV modulator, the CTD-10 color TV demodulator, and the FMS-2000 FM stereo modulator.

See ad page 76

CAT SYSTEMS 3426

Will unveil the new HQ Series computerized remote control systems for broadcast transmitters, earth station facilities, and cable systems. All systems use high-resolution color displays for the operator control panel and feature lightpen control. Established control systems will include the Model 6200 system with operator logon/off and the Model 5250 satellite system.

DWIGHT CAVENDISH CO. 2662

Will introduce the Copymaster QC 10/50, a semi-automated quality control station designed for use in high-volume video duplication applications. The Copymaster 250 videocassette duplicator will also be shown.

CECO COMMUNICATIONS/RICHARDSON ELECTRONICS 3343

Will feature a full line of broadcast transmitter and power tubes, camera

PERFECT FIT, ANY FORMAT.

Tek know-how at work in component television!

When it comes to maintaining performance and enhancing signal quality—in a world of changing formats—Tektronix is your one *complete* solution for test and measurement needs. Tek has what you need, when you need it.



650HR-C Series Component/Composite Input Picture Monitors. Multiple formats with direct analog component inputs—competitively priced.

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WFM-300 Component Television Waveform Monitor. A complete measurement set featuring Bowtie timing and Lightning displays. Tek innovations.

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Behind the scenes in
quality component television

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tubes, transistors, capacitors, and CCTV communications tubes.

CENTRAL DYNAMICS LTD. 3080

Will present the new Strata-7 microprocessor-controlled video production switcher featuring CDL's video overlay system and super SFX with simultaneous processing of up to seven different video levels. Also new is the economical CD400LE video production switcher with four matte generators and the capability to display simultaneously two chrome keys and 4 luminaire keys. Other products featured are the series 80 production switchers (the 680 and 1080), the SDS-2 distribution system, distribution amplifiers, and title keys.

CENTRAL TOWER 2799

Will introduce its ice shields for towers and discuss its selection of AM, FM, TV and microwave towers, including 120-, 200-, and 300-foot self supporting towers, 18- to 60-inch guyed towers, and a guyed 1000-foot tower.

CENTRO CORP. 3181

The star of Centro's display will be their Satellite Networker SNG truck. Also on hand are Centro's standard electronic equipment enclosures in one- and two-rack modules, and their one-inch vertical standing VTR console.

See ad page 91

CENTURY 21 PROGRAMMING 3452

Will introduce new GoldDisc music libraries on CD for CHR, AC, Mellow AC, Oldies, and Country formats. Also new will be auto-segued adapters for commercial CD players and music rotation software especially for CD formats. The SuperCarts series of prerecorded broadcast carts from digital sources will be demonstrated.

CENTURY PRECISION OPTICS 2422

New products are to be announced; the regular line includes the V-16 periscope for tabletop and miniature, wide angle attachment for video zoom lenses, Duplikin III slide copier for Sony bayonet mounted cameras, and assorted lens accessories.

CETEC VEGA 3394

Introducing the Model R-33 Pro Plus miniature portable wireless microphone receiver for ENG, location, or studio. It features Dynex II audio processing for high S/N and wide dynamic range, is battery operated, and is small enough to mount on the side of a camera or on the user's belt. The R-33 matches the Dynex II bodypack and hand-held transmitters, including the new T-86 omnidirectional, which is designed for interviews, audience participation, and musical-instru-

ment miking.

Also new is the Traveler and Reporter portable wireless microphone systems, and the Q-Plus wireless intercom system. Other products displayed are the R-42 Pro Plus true dual-diversity wireless microphone receiver, the Pro 1-B bodypack and Pro 1-H hand-held systems, the 66B portable receiver (now with GaAsFET front end), the full line of hand-held transmitters, affordable systems for low-budget ENG and LPTV applications, wireless intercom systems, and a full line of accessories, including the XRS-15 miniature lavalier electret microphone.

See ad page 134

CHANNELMATIC 2548

Will introduce the Adcart 2+2 fully random access ad insertion system with four VCRs (eight optionally) on one channel. It features full stereo audio capability, preview bus, computer-adjusted audio levels, and advanced audio and video switching circuitry. The Broadcast Break Sequencer, also new, allows automatic playback of up to 10 VCRs in a preset sequence. The third introduction will be the Eightball, a very low-cost 8x1 switcher with broadcast-quality stereo audio and video switching. Established products will include the Broadcaster I programmable, automatic videocassette changer.

Vanguard Series™ Broadcast Audio Consoles

Performance, Value and
Reliability through
Innovative Technology

- Raised, tactile feel, lighted membrane switch panel-digitally scanned
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- VCA controls, rotary and linear
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USE THE PERFECT MATES FOR YOUR STEREO SWITCHING AND DISTRIBUTION NEEDS.

- The D-525 is a 2-channel Audio D.A. with 6 balanced outputs per channel. It can be used for one monaural input with 12 outputs, two monaural inputs with six outputs each, or one stereo input with 6 stereo outputs.
- Ten D-525 amplifiers fit in one DF-609 5¼" Rack Frame, providing 120 balanced monaural or 60 balanced stereo outputs in only 3 rack units.
- Front panel gain controls and clip level indicators.
- Individual power supply.
- The D-4317A is a 20x2 Monaural or 20x1 Stereo Audio Switcher, self contained in a 1¾" Rack Frame. It can be used with a D-4304A 20x1 Video Switcher, for 20x1 video/stereo audio switching.
- Maximum audio output is +30dBm balanced for excellent "headroom" and audio dynamic range is in excess of 100dB.
- Remote control panels operate over a single coax line.

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CHESTER CABLE 2734

Will introduce component video cables which comply with SMPTE standards for such cables. Multiple audio pair cables for studio applications will be on hand along with standard audio and video cables and custom cables.

CHISAN UNITEC 2494**CHYRON CORP. 3072**

Many new enhancements for Chyron products will be introduced, including new video circuitry for the Chameleon Paint System that will enable display of high-quality composite video images from Chameleon directly as well as through RGB signals currently used in graphics production studios.

For the VP-2 character generator many new fonts for high-resolution, high-quality display have been added to the VP-2's already extensive font library. By combining the capabilities of the Chameleon and VP-2, the VP-2 "Text Grab" feature of the Chameleon can transfer graphic images from the VP-2 screen. This allows graphics and character generation to be mixed for timely presentation.

New enhancements to add a multitude of artistic effects to text and graphics to the Scribe text generator will be shown, including: Logo Compose, which includes a digitizing tablet for the creation of antialiased Logos and other graphics; Preview Channel for large-scale mass storage with streaming tape backup for message and font storage; and Networking, a high-speed communications link between multiple Scribe systems allowing for sophisticated multichannel operations and database sharing.

Enhancements for the RGU-2 system include digital video effects with motion: spins, tumbles, zooms, linear splits, and 100 types of wipes. For the Chyron IV 100 additional fonts are provided by enhanced software; hardware enhancements enable the Chyron IV to interface with a variety of powerful election reporting systems. The interface results in a two-channel system that can function simultaneously as a character generator and an election reporting system.

CINE 60 3428

Will display its line of battery belts and packs, camera batteries, sun-guns and sun-gun kits, battery cables, Arri batteries, and quick releases.

CINEMILLS CORP. 2777

Will exhibit Lee filter color media, Lee resin and polyester camera filters, Desisti lighting equipment, ILC Technology Daymax HMI bulbs.

CIPHER DIGITAL 2605

Two new products, an audio editing system and a VTR synchronizer/emulator, will

be unveiled at the show. The established line of time code readers and generators will be displayed, along with the Shadow II synchronizer controller, the Softouch audio editing system, and Shadowpad.

See ad page 46

CIRCUIT RESEARCH LABS, INC. 2538

Will introduce two new products designed to assist in the implementation of new AM Standard Pre-emphasis and Filter Specifications to existing hardware. Will also be demonstrating its full line of audio processing and generation equipment for AM, AM Stereo, FM, and MTS.

CLEAR-COM 3352

New this year will be the Series 500 intercom belt packs, incorporating a custom-designed digital IC to control noiseless electronic switching on all audio and signalling circuits, enabling advanced features and user programmability. Also shown will be the line of main stations, belt packs, IFB, remote speaker stations, system interfaces, dynamic headsets, and intercom accessories.

CMC TECHNOLOGY, DIV. DATATAPE, A KODAK CO. 3340

Will feature its complete line of replacement video heads for all C-format VPR Series machines, as well as the Videomax TD-800 bulk tape demagnetizer and the line of quad video and audio heads and VTR accessories.

CMX CORP. 3232

Will show the new CMX 6000 video disk based film and video editing system in room N223 at the convention center. Also new is the CMX 100 video editing system with integrated video switcher and six-fader audio mixer for promos and news.

Other featured products are: the CMX CASS-1 computer-aided audio sweetening system, combining editing, synchronization, and audio console fader automation; the CMX 3400A large-scale video editing system with all of the features of the CMX 3400 and Dynamic Motion Memory; the CMX 3100 8-to-24 port video editing system offering multiple EDL files, Autoclean, Match-Cut Calculate, Learn keys, and other features to speed editing; the CMX 330L five-port (four machine and external switcher control) Large Scale editing system now with Superkit interfaces; and the EDL Optimizer for list cleaning, text editing, lookback, sorting, speed assembly, and utilities in a software package for IBM PC/PC compatibles.

COAXIAL DYNAMICS 108

Will unveil the Model 810/0 "Wattchman" transmitter protection system, featuring two easily read meters to monitor both forward and reflected power. The line of high-power directional wattmeters, Panel Mounter RF wattme-

ters, and termination RF load resistors will also be featured.

See ad page 95

COHERENT COMMUNICATIONS, INC. 2801

Will introduce the Model VT-300, a cigarette-pack size, UHF band video/audio transmitter for remote monitoring, and the TC-500A time code slate, a conventional-looking clapper-board with a built-in SMPTE time code generator/reader. Also on display will be the Noriyuki line of SMPTE time code readers, generators, and inserter combinations; the VT-200 video transmitter, MX-80 portable mixer, radio-microphones, microphone power supplies, and audio accessories.

COLORADO VIDEO, INC. 3447

Will present the Model 240 freeze-frame vertical blanking interval transmission system, which uses one line of information per field in the VBI to transmit an NTSC-like color image in eight seconds. Also shown will be the 496/497 video multiplexer/demultiplexer system for up to four video sources over one channel. Existing products to be shown include the 302-2 sync stripper and freeze frame communications systems.

COLORGRAPHICS SYSTEMS 3128

New this year will be the ArtStar Workstation, designed to allow multiple and simultaneous data and graphics transfer through the Ethernet local area network. Ethernet allows the ArtStar Workstation to communicate with other ArtStar systems, allowing multiple on-line users to share data and images.

Also new is LiveLine V, described as the first and only 32-bit-per-pixel full-feature weather graphics system, with all the paint features of the ArtStar systems and ability to link up with ESD, Accu-Weather, WSI, or Weather Central.

The LiveLine PC, an IBM PC/AT-based weather graphics system with automatic map drawing, animation, and full paint features, is also new. The LiveLine IVA has been enhanced with new real-time cel animation and expanded satellite looping options, along with a new user interface, Ethernet LAN option, and other features.

A new user interface will also be demonstrated for the ArtStar 3D, which now features real-time 3D animation preview, new 3D text capabilities, real-time animation zoom and scroll capabilities, and 16 individually controllable light sources with Phong and Gouraud shading capabilities. Rendering speed has been increased with an optional Motorola 68020 processor and array co-processor. ArtStar II also has faster rendering speeds, new text capabilities for multicolored fonts, real-time animation zoom and scroll, and improved user interfaces and all-new menus.

See ad page 41, 140

COLUMBINE SYSTEMS 3405

New this year will be the United System, a business automation software product for the IBM System/36 and System/38 computers. It encompasses all the functions currently automated by Columbine and makes full use of the computers' speed and advanced features. The full line of software for sales/traffic/billing, general ledger and accounts payable, film amortization, payroll, fixed assets, newsroom management, and music inventory and rotation will be demonstrated.

COMARK COMMUNICATIONS, INC. 3190

New products for NAB include the CTT-U-

60SK 60 kW UHF Klystron television transmitter, the CTT-V-30L/H 30 kW, all solid-state VHF television transmitter, and the CTT-V-50L/H 50 kW single-tube VHF television transmitter. Also on display will be the CTT-U-2MX 2 kW single-tube television transmitter and the CTT-U-60SE 60 kW UHF Klystron television transmitter.

See ad page 92-93

COMMUNICATION GRAPHICS 2423

Will bring its line of promotional novelties.

COMMUNICATION MICROWAVE 130

Will show its line of solid state 30, 50, and

100W microwave TV transmitters as well as the R10-S and R50-S separate aural visual ITFS repeaters.

COMPREHENSIVE VIDEO SUPPLY 3593

Several new products to be introduced include the Softouch range of five softlights for film and TV; the V-20/10, a new 2 kW focusing spotlight; new ranges of distribution amplifiers and "System Grade" cables and connectors; the PC-2, a plug-in board that allows a personal computer to be used as a broadcast-quality character generator; Prompt Master computer software to use a personal computer as a teleprompter; and Movie Master screenwriting software. The full line of production and post-production professional video accessories will be featured.

COMPROMPTER 2710

Will bring out a new newsroom system, the ENR-PC, for use with any MS-DOS PC. Regular line includes Totaprompter, a portable, battery operated prompting system based on a laptop PC, as well as Apple II series-based prompters and electronic newsroom ENR systems, the latter of which supports up to 60 users.

COMPU = PROMPT 2408

New products include continuing software support and system updates such as extended memory for longer scripts, uploadable user-defined character sets, and utilities to support file transfers with virtually any computer. Also showing: the 1130xm color computerized prompting system for quick editing, search, and instant move features; Deluxe Camera Mount for virtually any camera, including color monitor and beam-splitter assembly; Podium Prompter; Micro Prompting System; rugged anvil-type shipping/storage cases custom designed for CP units; and additional options, including printers for hard copies of text, and modems for transmitting text to and from distant locations.

COMPUSONICS 2533

Will show its new DSP 1000 digital audio disk recorder, a computer that uses optical disk technology for recording high-fidelity digital audio. Also featured will be the DSP 1500 digital disk broadcast spot recorder/player, which uses a floppy disk cartridge, and is designed with the look and feel of traditional cart machines.

COMPUTER PROMPTING 132

Will show its CPC 1000 IBM PC-compatible teleprompter and the CPC 2000 with simultaneous real-time closed captioning for hearing impaired.

COMREX CORP. 3460

Will introduce a new telephone hybrid interface. Will also exhibit single and dual

K104 TAMED VOLTAGE TRANSIENTS WITH POWER SIFTOR®

"You may not know it, but right now your new whiz bang piece of equipment could be destroyed, not by an overzealous, hyperactive disc jockey, but by an even more insidious menace: voltage transients, or spikes, on the electrical lines in your studios or transmitters.

"At K104, we can't afford to go off the air because of power surges and lightning strikes. Our Current Technology Power Siftors have saved us from these perils on a number of occasions. That's why I recommend them for studio and transmitter site protection.

"If you CAN'T AFFORD to be off the air...you CAN AFFORD Current Technology Power Siftors."

-Gerry Dalton
Director of Engineering
KKDA FM/AM Dallas



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Technology

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line frequency extenders, telephone couplers, ENG and satellite news gathering cue systems, and TV aural monitors.

COMSAT INTERNATIONAL 2792

Comsat International offers broadcast-quality TV transmission services to and from more than 110 countries around the world. Comsat General representatives will also be on hand to provide information on SkyBridge, the Ku-band satellite newsgathering service, as well as other Ku- and C-band domestic services.

COM-TEK COMMUNICATIONS TECH 2652

Will show its RC-72 wireless IFB systems for studio and remote applications along with the MR-182 wireless mic systems.

CONCEPT PRODUCTIONS 3334

Will show five contemporary MOR with target demo of 35 to 55 and show format for automated or live assist including ac, chr, aor, country and contemporary morl.

CONNECTRONICS 2403

Will introduce the Seck-62 B, the broadcast version of the Seck-62 recording and P.A. portable audio mixing console. Also new will be Studiflex-24 multipair cable for studio installation and harness wiring, and the UX high-power audio connector

for loudspeakers. A full range of Seck portable audio mixers and the Connectronics range of audio wire and cable will also be featured.

CONRAC DISPLAY PRODUCTS GROUP 3124

Will display the Micromatch color monitor system consisting of the 6545 color monitor and the 6550 photometer. The Micromatch system offers unique automatic monitor setup capabilities, which reduces in-studio monitor set-up time to 20 seconds per monitor as well as improving monitor accuracy and control.

CONTINENTAL ELECTRONICS 3200

New products will be announced at the show. The full line of AM and FM broadcast transmitters with power levels from 1 to 70 kW will be displayed, along with FM antennas, audio equipment, and related RF products.

See ad page 161

CONTROL CONCEPTS CORP. 2687

Will show the new expanded Islatron product line for power-line protection of facilities or systems, including protection of transmitter, studio, satellite system, video editing, control systems, and other digital equipment. Islatron Active Tracking

filters provide protection against damaging powerline disturbances, such as spikes, transients, and lightning-induced voltages.

CONUS COMMUNICATIONS 3385

Information about the Conus Ku-band satellite newsgathering system will be featured. Conus provides national and regional news coverage, space segment on the SBS III and RCA Americom K2 Ku-band satellites, and such specialized services as event coordination, live coverage of breaking news, two-way interactive, and special programming including custom service from the Conus Washington bureau. Conus is also in a joint venture with the Associated Press in TV Direct.

CONVERGENCE CORP. 3252

Convergence is a subsidiary of EECO, Inc. Products being shown are: the EMME, an eight VTR edit-controller designed for high-end post-production systems; the ECS-1000, a six VTR edit-controller featuring assignable record, sequential and checkerboard auto-assembly, list management, comments entry, and 1000 lines of memory; the ECS-205, an eight VTR edit-controller with full list management, checkerboard, and sequential auto-assembly, list management, comments entry, and 1000 lines of memory; the ECS-

DPTC-25 KFM
GREATLY
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Electro Impulse New Dry FM Loads

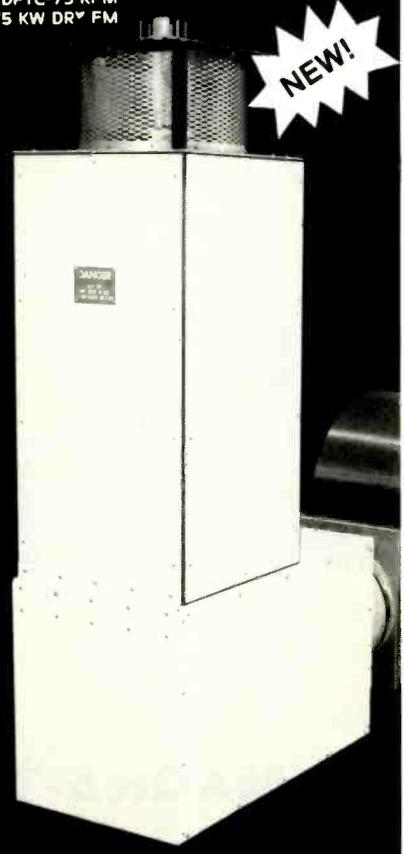
Rugged & Reliable

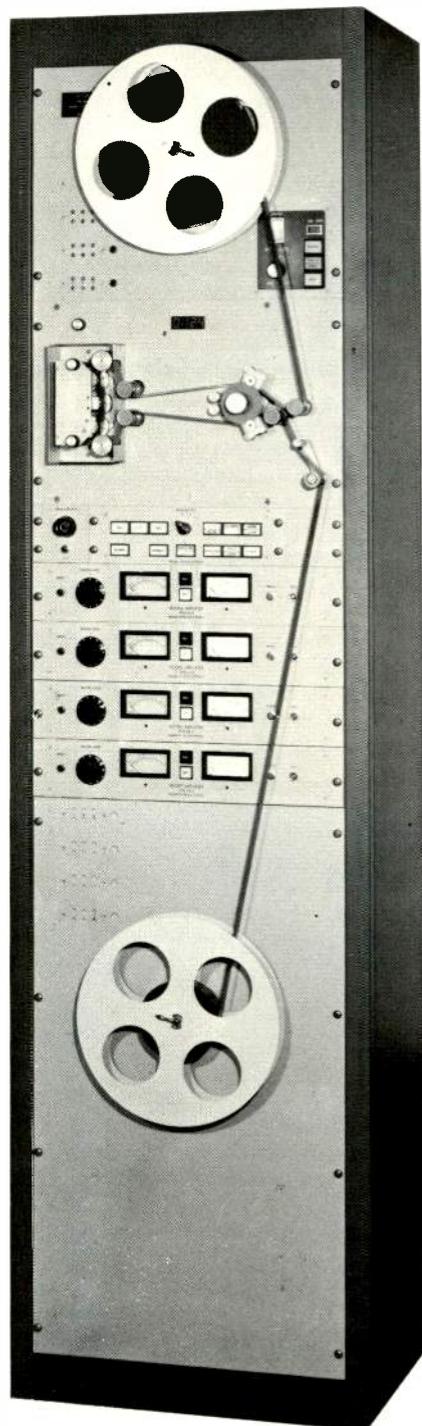
- Greatly Improved 25 and 50KW Dry Loads; new 75KW load
- Reduced Load and RF Connector Temperatures
- More Efficient Air Flow Pattern
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Red Bank, NJ 07701
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DPTC-75 KFM
75 KW DRY FM





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MAGNA-TECH ELECTRONIC CO., INC.

630 Ninth Avenue, New York, N.Y. 10036

Telephone (212) 586-7240

Telex 126191

Cables "Magtech"

205, an eight VTR edit-controller with full list management, checkerboard, and sequential auto-assembly, assignable record and comments entry; the IVES II, an AVB roll controller with effects and list management; the Super 90, a single source, cuts-only controller; and the ECS-195, a three VTR edit controller with effects, list management, and sequential auto assembly. The full line of EECO time code products will be shown, and the Convergence CI character generator.

CORPORATE COMMUNICATIONS CONSULTANTS 221

Will display its line of color correction products; some with time-saving automation, for component video, flying spot scanners, and CCD telecines.

CROSSPOINT LATCH 3533

Will introduce the 6051, a 1 3/4-inch rackmount, genlockable RGB encoder with built-in sync generator, providing sync and subcarrier outputs as well as color bar output. Also new is the 6070, an RS-170A sync generator in PAL or NTSC versions with SMPTE color bars plus six black burst outputs. Established products will include the 6129 AHK two-M/E post-production switcher; the 6112 and 6109 switchers, now with insert fill and external border inputs; the 8200 Excalibur dual TBC/switcher combination with digital effects and audio follow; the 6150BK master control switcher; the 6116 component switcher; the 6119 compact production/post-production switcher; the 6139 three-M/E production switcher; and the 6800 stereo audio follow mixer.

CROWN INTL., INC 2927

Four new microphones will be introduced: the GLM-100D and GLM-200D broadcast dual lavaliers, and the GLM-100/ENG and GLM-200/ENG for field use. Both types are available in directional or omnidirectional models. Crown will also show its full line of other microphones and its broadcast-standard amplifiers.

CSI MARKETING 3418

Will introduce the T-40-F 40 kW single-ended FM transmitter and CSX-20F Exciter utilizing a second order phase lock loop. Also on exhibit will be the T-20-F1 20 kW FM transmitter, the T-25-F1 25 kW FM transmitter, and the T-10-A 10 kW Am transmitter.

CUBICOMP CORP. 3478

New software enhancements for PictureMaker will be introduced at NAB. PictureMaker 30, a 3-D video animation system, and PictureMaker 20, for presentation-making applications, will both be shown. Also present will be the model 331 graphics package, and the model 321 graphics software.

CURRENT TECHNOLOGY 2723

In its first NAB exhibit, will present the Power Sifter, a line of power conditioning systems for spurious line noises or spikes. On hand will be a recent addition called the PC series, which are low amperage Power Sifters designed for small, individual pieces of equipment containing microprocessors and other sensitive components.

See ad page 118

CUSTOM BUSINESS SYSTEMS 2517

Will introduce new coop management and copywriting software for radio stations. Featured will be The System, the

company's established business software system including traffic and billing, sales management, general ledger and payroll, coop/copywriter system, word processing, music library, and concert music system.

CYCLE SAT 2645 & Outside

Will illustrate its satellite commercial distribution and production system with a live demonstration linking its booth and a 37-foot vehicle at the show with the satellite hub in Iowa.

PETER W. DAHL CO., INC 222

Will introduce a line of custom high-voltage power supplies for TV Klystron appli-

Timesaver

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TCR 680

The TCR 680 SMPTE Time Code Reader/Insertor

Here's the perfect time and worksaving way to make a copy of your master tape - with time code displayed in the picture for efficient off-line edit decision-making.

Its highly portable design makes the TCR 680 ideal for all location work, and an invaluable tool for precise editing.

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DX COMMUNICATIONS, INC. 2693

Will introduce its new DSA 654TM, a computer-controlled Ku-band receiver for satellite newsgathering. Other satellite receivers will also be shown.

DYNAIR ELECTRONICS 3409

Will introduce the Dynasty family of routing switchers, consisting of mix and match components with bandwidths of 20, 40, 60 and 100 MHz to allow for present and future requirements, including component video, HDTV, and graphics. The Series 10 and 1600 switching systems will be on display, along with the

Series 1500 and Series 5300 distribution equipment and Dynair's machine control system, ESBUS-compatible, with digital switching matrix.

DYNAMIC SOUND AND VISION 2578

DYNATECH DATA SYSTEMS 3128

Featuring coaxial and twinaxial patch assemblies, including patch jacks and cords. See ad page Cover III

EASTMAN KODAK 3208

Eastman products to be exhibited will in-

clude professional and broadcast grade videotapes in all formats and lengths for half-, 3/4-, and one-inch applications; color high-speed negative films 7292 and 5294; and color negative films 7291 and 5247. The Kodak professional 8 mm video duplicator system will be demonstrated, along with the Datakode magnetic control surface for film. See ad page 133

ECHOLAB 2828

New this year will be the DV-5 video switcher, with 12 inputs, computer calibration from the front panel, five percent deadbands, and optional quad splits and rotary wipes. The established SE-6 and SE-3 video switchers will be on display, along with the AFS audio switcher.

ECCO See CONVERGENCE CORP. 3252

EEG ENTERPRISES 2802

Will show their complete data casting system, all the hardware needed to implement a vertical blanking interval data distribution service. It includes the new model VDR-1 VBI data receiver, and the model EN 512 data inserter, and the TE 511 video data bridge. Also on hand will be the EDAC-2, a local-origination captioning system for news. All other closed-captioning products, teletext data bridges, and transcoders will be shown as well.

EEV 2626

Will show two new camera tubes, the XQ1410/P8520 30 mm triode gun Leddicon and the XQ3457/P8474 3/8-inch mixed field Leddicon. The full line of UHF TV klystrons, power tetrodes for AM and FM transmitters, Leddicon camera tubes for studio, EFP, and ENG cameras, vidicon camera tubes for telecine and caption scanning, and vacuum capacitors for broadcast use will also be on hand. See ad page 116

EG&G ELECTRO OPTICS DIV. 2612

Will unveil the LS-159 antenna obstruction light and the LS-161 medium intensity aviation obstruction beacon. The LS-158 high-intensity aviation obstruction marking and lighting system, previously exhibited, will also be shown.

ELCON ASSOCIATE 2621

Will show its videotape cleaners and evaluators.

ELECTRO IMPULSE LAB 3431

Three new and improved models will be added to the line of dry, forced-air-cooled FM dummy loads, RF calorimeters, wattmeters, and attenuators. See ad page 119

Don't settle for a shotgun mic that colors off-axis sound.

The new lightweight Shure SM89 eliminates coloration up to 30° off-axis. Thanks to its new Accu-Port™ design, the off-axis response of the SM89 is smooth and natural, free of the peaks and dips caused by the comb-filter characteristic of most shotgun mics. So off-axis sound is much easier to control and equalize.

The SM89 also features a newly designed condenser cartridge for improved sensitivity. Plus a built-in rolloff filter that eliminates low frequency noise problems, and controls proximity effect in close-up work.

The durable aluminium design is 30-40% lighter than other models. The low noise amp also can be powered from 11 to 52 VDC phantom power and separates from the capsule for field repair.

For more information, write or call Shure Brothers Inc., 222 Hartrey Ave., Evanston, IL. 60202-3696 (312) 866-2553. G.S.A. Approved.

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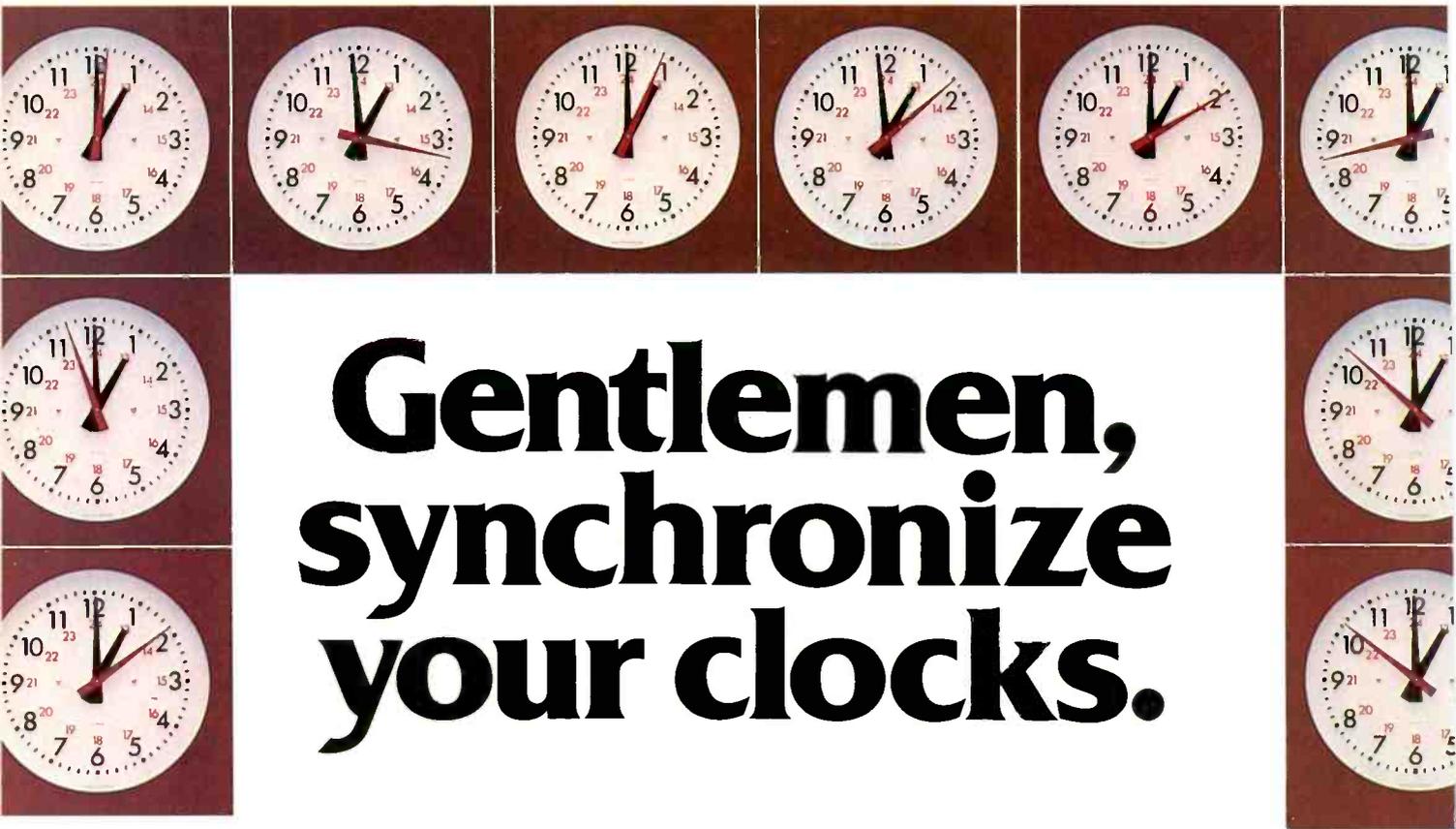
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AL's is the first, fully Automated Library System
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Stop by the NAB Booth 3532 for a beer mug
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Gentlemen, synchronize your clocks.



The new Leitch CSD-5300
keeps clocks milliseconds accurate
across the city, across the country.
Automatically.

If time synchronization is one of the keys to your business, look into the new Leitch Master Clock System Driver - the CSD-5300.*

Under this one control, a multitude of clocks, digital or impulse, will move in astounding unison. These clocks can be in the same location or thousands of miles apart in different time zones.

The new Leitch CSD-5300 also interfaces

with video terminals and computers. What's more, you get time setting accuracy within one millisecond. Using the telephone, the Leitch CSD-5300 calls a number connected with the ultimate reference for time in the land and adjusts itself when necessary.

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*Generates SMPTE, EBU Time Code.

FORT WORTH TOWER CO. 3360

Will show its range of towers and prefabricated equipment buildings.

FOSTEX CORP. 2579

Will be exhibiting FAME (Fostex Automated Media Editing) Software for the Apple IIc and IIe PCs. Designed as an interface for the company's 4030 Synchronizer, FAME can also be used with other Fostex products to create turnkey multimedia editing systems. Also on display will be the 4010 time code generator/editor, 460 cassette/mixer with video lockup capability, as well as the company's line of multitrack recorders, monitors, and headphones.

FREZZOLINI ELECTRONICS 2716

Will introduce the Frezzi-Max FBP-90P, a fuseless, protected battery pack and the VPS-10/14, an uninterruptible, 10-14V input, auxiliary on-board power interface, as well as production versions of the 1987 line of Frezzi Mini-Fill professional on-board camera lights. The company will also display its FMPC-87 automatic battery charger, the FBP-90 Series of in-board batteries, FBP-12/13/14 Frezzi-Max on-board batteries, and the RPS-40 and RPS-2 AC adapters.

See ad page 44

FUJINON 3410

Will demonstrate its full line of one-half,

¾, and 1¼-inch broadcast video lenses for cameras. Lenses run from a 5.5-48mm wide angle lens to a superlong 36mm-1600mm.

See ad page 123

FUJI PHOTO FILM U.S.A. 3240

The new H521E/HJ21E-BR ¾-inch videocassettes for broadcast and professional use will be introduced. Products from the established videotape line will include H621E and H621 one-inch videotape, 321B Betacam cassettes, M401 M-II metal videocassettes, H421M M-format cassettes, S.H.G. and standard VHS/Beta videocassettes, and 8 mm video cassettes.

See ad page 39

FUTURE PRODUCTIONS 2790

Will show the FP 80, a tape duplicating system designed for use with 80 VCRs, and the model FP 200, a full-function tape duplicating system designed for use with from 20 to 1,000 VCRs.

GARNER INDUSTRIES 2601

Will feature its line of video, audio, and computer tape erasers.

GENERAL ELECTRIC CO. 2717

Two new compact fluorescent lamps, the F18BX/SPX30 (18 W) and the F39X/SPX30 (39 W), will be added to the existing line of stage and studio bulbs.

GENERIC COMPUTER SYSTEMS 2818

Will show a faster version of its automated traffic and billing software for use on IBM compatible or Apple software.

GENTNER ENGINEERING CO. 2669

New this year will be Digital Hybrid, an auto-nulling, on-air telephone system using digital signal processing techniques. Established products on display will include the VRC-1000 remote control unit; the SPH-3A, SPH-4, and TC-100 telephone systems; the Teleprocessor telephone audio processor; the Microtel portable telephone interface; the EFT-900 and EFT-1000 audio bandwidth extenders; the 10A and 20A audio routing switchers; the IC-20 intercom system; and the full line of audio patch panels including Versapatch.

ALAN GORDON ENTERPRISES 3435

Will display its full line of HMI fixtures, lighting and grip equipment, and Cinemeter light meters.

G & M POWER PRODUCT 2715

Will exhibit a new on-board 14-volt camera battery, a 30-volt light belt, and a giant "Superblock" with two batteries and automatic cut-off charger available in ei-

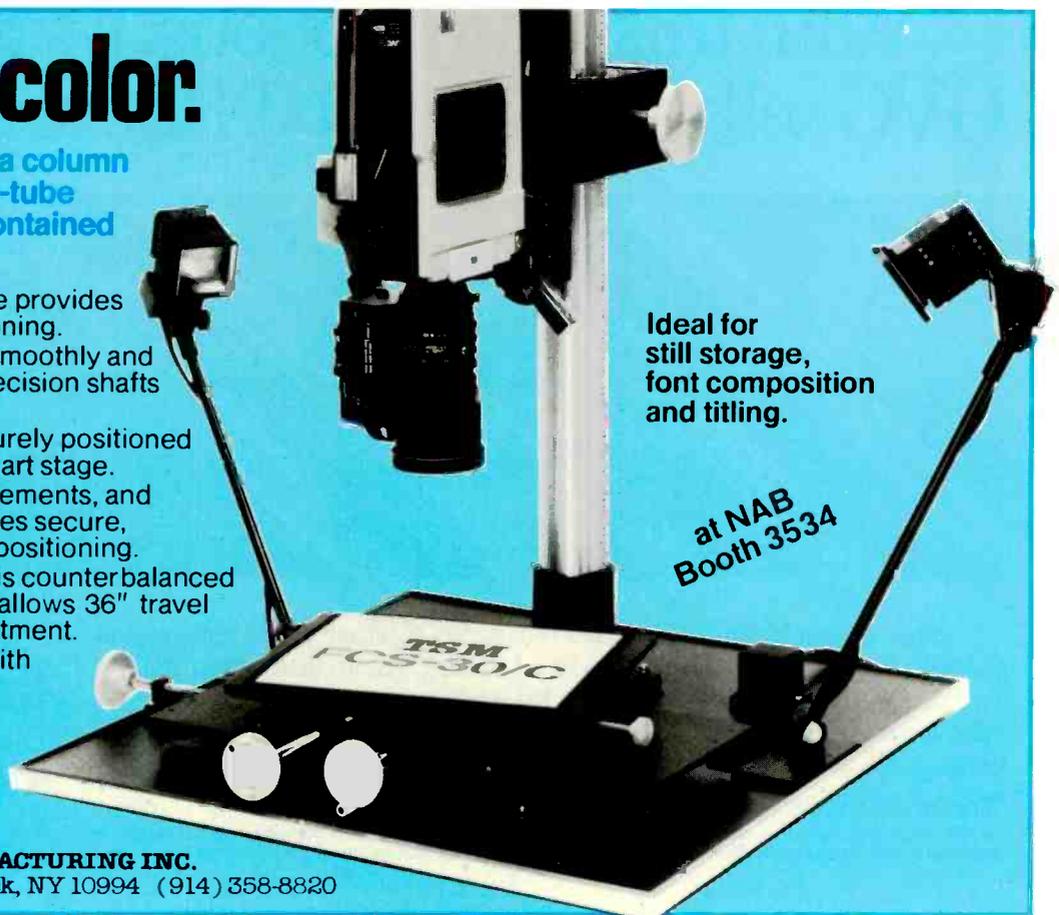
New for color.

The FCS-30/C features a column mount to support a ¾", 3-tube color camera and self contained 3200°K lighting.

- Triple movement art stage provides X, Y and rotational positioning.
- 9" x 12" art stage moves smoothly and accurately along steel precision shafts and bronze bushings.
- Artwork is easily and securely positioned with magnets to the steel art stage.
- Height scale, with ¼" increments, and locking mechanism assures secure, accurate and repeatable positioning.
- Universal camera mount is counterbalanced for easy positioning, and allows 36" travel with rack and pinion adjustment.
- Two lights are provided with On-Off switch.

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Ideal for
still storage,
font composition
and titling.

at NAB
Booth 3534

ther dual 12- or 14-volt configurations. Will also display a full line of chargers.

GORMAN REDLICH MFG.CO. 2715

Will show its established line of EBS encoder/decoders; NOAA weather receivers; and digital antenna monitors for directional AM arrays.

GOTHAM AUDIO CORP. 3354

New items will include the Neumann RSM 190 stereo condenser shotgun mic for sports and ENG, and the EMT 258 dynamic noise filter. Will also show from the established line the EMT 266/277 transient limiters, EMT 938/948 broadcast turntables, Studer A807 1/4-inch tape recorder, Studer A725 professional CD player, and K&H self-powered reference monitor speakers.

GRAHAM-PATTEN SYSTEMS

2528

Will introduce the newly developed Video Audio Multiplexing Process (VAMP), which allows four channels of digital audio, baseband video, and an auxiliary data channel to be combined into a signal suitable for satellite or terrestrial transmission. Also on view will be the Universal Television Equipment Control System (UTECS); the complete line of Edit Suite Audio Mixers including Models 608, 612, and 616; the 1230 line of video keying systems; and

the range of utility video DAs. See ad page 175

GRASS VALLEY GROUP 3112

Several new products will be introduced, among them: the Model 200 production switcher featuring linear keying, multiple external key inputs for each keyer, and expanded wipe set for each of the two M/Es; Models Ten-20 and 20-Ten routing switchers (10-in, 20-out and 20-in, 10-out respectively), available in a variety of configurations including component video; the 9550 changeover switch for the 9550 Series sync pulse generator line; the 8560 stereo audio DA system; and the CV-25 encoder, which completes the CV-20 Series of component video terminal equipment and offers two composite outputs from RGB inputs, built-in SPG for horizontal timing adjustment, and adjustment of chroma phase, blanking widths, sync and burst levels, and video gain.

From the established line, GVG will exhibit the Models 100, 100CV (component), 300, and 1680 Series production switchers; the 1600-45 master control switcher with M200 automation system; the Models 31, 41, and 51E editing systems; the EZ-Link and Wavelink fiberoptic communications systems; the Kaleidoscope digital effects system; the line of processing/timing/distribution equipment; the Horizon and Ten-X routing switcher

systems; the AMX100 audio mixer, and the KEY-MEM effect memory system. See ad page 8, 130

GRALAN DISTRIBUTORS 2692

GRAY COMMUNICATIONS CONSULTANTS 3402

Will be displaying broadcast TV equipment, systems installation and mobile production vehicle, and an ENG/satellite news gathering vehicle.

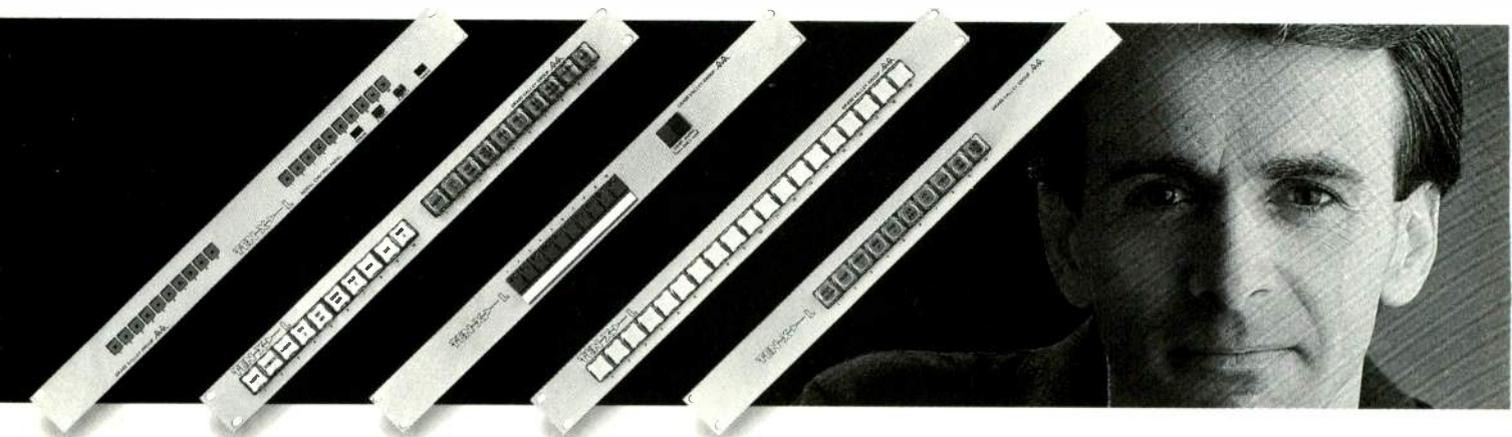
GRAY ENGINEERING LABS, INC. 2515

Will introduce the FCM-227A film counter/multiplexer/character generator. Established products on display include, the VR-116 video reticle generator, DR-107B time code data receiver/character generator, CPC-700 code phase corrector, TCA-143 time code analyzer, DT-104F time code data transmitter, DT-213 data transmitter/character generator and FC-142 film counter/character generator.

GREAT AMERICAN MARKET 2714

Will present the MicroBrute LV9 mini 9 V light; Fog Power scented fog fluid in six "flavors" and plain; complete lines of RDS/USA studio and portable lighting equipment; and the ColorMax ColorQ computer controller for ColorMax rolling color changes.

“With this many options, it’s no wonder GVG sells so many 10x1 Routing Systems.”



When a manufacturer offers such a wide variety of remote panels, serial control and tally, it's no wonder they sell more 10 x 1 Routing Systems than anyone else.

And with expansion capability up to ten times its original size, there is no better investment than a Grass Valley Group 10 x 1 Routing System.

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GRUMMAN ELECTRONICS SYSTEMS 2481

Will be showing the AIS 5000 ad insertion system with random access, computerized control of spot insertions, and complete automation capabilities.

JAMES GRUNDER AND ASSOCIATES, INC. 2429S

Will debut the P-153, a low-cost digital effects system with zoom capabilities and border color and key options that will replace the company's EFX-I system in the product line. Also on display will be the EFX-II, EFX-III, and EFX-IV digital effects systems as well as the P-156/2, a low-cost standards converter.

GTE SPACENET 3324

Will discuss all its services for broadcasters including Call Express, for Ku-band satellite-based voice communications; News Express, the satellite news gathering service; and Turnaround Service, which allows stations to convert between Ku- and C-bands.

HALLIKAINEN & FRIENDS 2925

Will introduce new low-cost UHF control/telemetry radio equipment optimized for use with the DRC190 remote control. Also new will be a 32-channel status transceiver for the DRC190; the IEEE488 port for controlling remote automatic test equipment; the DRC190 direct connect modem for transmitter control through dial-up telephone lines. Items from the existing product line will include the DRC190 remote control system, the TEL171 digital metering adapter for the Moseley TRC-15A remote control, and the TVA142/132 monaural audio mixing system with audio follow video.

HARDIGG INDUSTRIES, INC. 2489

Showing their complete line of reuseable plastic shipping and storage cases and containers. Also showing Skid-Mate cushions, Skid-Mate + Plus, and Corner-Mate package-cushioning devices for safe packing and shipping when using corrugated cartons.

HARRIS CORP., BROADCAST DIV. 3136

New products from Harris will include an external cavity Klystron UHF transmitter; the FM-25K1 25 kW FM radio transmitter; the 950 MHz SiteLink aural STL for radio applications; the 6 GHz portable microwave Global transmitter/receiver, which covers the 5.850 to 6.525 GHz frequency range; and the I-NET and I-MAC add-ons for the IRIS still store system. I-NET enables storage sharing between systems, while I-MAC permits networking of up to four IRIS-II systems with expansion to 32 drives. Harris will also be displaying its established lines of AM, FM, and TV transmitters; Medalist audio consoles; Sentinel re-

mote controls, IRIS C and ESP-II still store systems; 550VT time base corrector; AC-20AS signal processor; 632 frame synchronizer; 640 frame synchronizer/time base corrector; VW-3 TBC/frame synchronizer; and a full line of fixed and mobile microwave systems.

HARRISON 3412

Will introduce the latest revision of its Series Ten console with the VGA Ten interactive graphics subsystem for on-screen display and mouse manipulation of console functions. Also on hand will be two versions of the Air 7 console, primarily for on-air radio, the Pro 7 for edit suite applications, and the TV 4 for station production and post-production.

KARL HEITZ, INC. 2900

Support equipment from Gitzo will include the 480 100 percent fluid head with adjustable counterbalance; the 510B4 Mini Tele Studex for cameras up to 50 pounds; the 510B6 Mini Tele Studex for cameras up to 100 pounds; and the 563LM microphone fishpoles. The full line of Gitzo support equipment will be on view.

HIPOTRONICS 2645

Will feature its line of automatic voltage regulators, ac/dc high-voltage test sets, and voltmeters.

HITACHI DENSHI 3160

Will introduce the Z-31A high-resolution auto setup camera, a solid state color camera in an ENG version and that's dockable, and an HDTV system with a digital VTR. The SK-120D full computer auto setup studio camera, also new, features one-inch LOC diode gun plumbicons. Regular line equipment will consist of the HR-230 one-inch VTR, SK-110D full computer auto setup studio camera, and the SK-97D ENG/EFP and 970D field/studio cameras with auto setup.

HM ELECTRONICS 2619

Introducing the FR-200A Field Pac, which holds up to six of the company's wireless microphone receivers and two new cabled microphones. Will also be displaying its line of wireless microphones and intercom systems (both wireless and cabled).

HOFFEND & SONS, INC. 2641

New this year are motorized lighting hoists, and compact point hoists for individual lighting fixtures. Also demonstrating engineering and installation of stage and studio equipment and rigging.

HOLIDAY INDUSTRIES 2737

Will unveil new instrumentation to measure nonionizing radiation from video display terminals. The HI-5000-SX RF broadband exposure measurement system will also be featured.

HOTRONIC 2531

The Model AF71 TBC/frame synchronizer with two-frame memory and freeze frame/freeze field will be introduced. Established products will include the Model AE61 time base corrector and the Model AE61B low-cost TBC.

HOWE TECHNOLOGIES CORP. 2832

Will introduce the Phase Analyzer, a test instrument for detecting the relative phase between two input sources. Also new will be the HDP 1000 external stereo headphone amp, with two balanced inputs and two 200 ohm headphone outputs, each with independent volume control and switch-controlled signal matrix. From its established line, Howe will exhibit the custom-made modular 10,000 console; the 9000 Series modular console with linear faders and expandable controls; the 8000 Series console, expandable with rotary faders; the 7512A linear fader 12-channel console; and the 7012A and 7012 rotary fader 12-channel consoles.

HUBBARD COMMUNICATIONS 3286

Will show a redesigned version of the HCP-500 video time delay machine, now with microprocessor control, for delay of incoming satellite or network feeds; and the new Model SNG-220 satellite newsgathering vehicle with increased production rack and storage space. Also on view will be the Model SNG-LB Low-Boy SNG vehicle; the SNG-CX SNG vehicle on a Chevrolet chassis; the SNG-VFP video flight pack for international and domestic SNG operation; the HCC-55 video cart machine for spot playback; and the MS-1, MS-2, and MS-3 exciter and TWTA waveguide switches.
See ad page 135

ICM VIDEO 2468

Will show their complete product line, including several new accessories developed for their CG-7000 character generator. These include the MM-1400 external memory storage module, the ES-200 enhanced software plug-in IC, the CV-1053 character edging module, and several new plug-in font modules. Other products showing are the VC-2000 video corrector, the DA-5020 audio and video distribution amplifier; other audio and video DA's, and the RS-400 passive routing switcher.

IGM COMMUNICATIONS 3378

Will demonstrate the IGM-EC and IGM-SC program automation controllers, both powered by IBM or compatible microcomputers. Also on view will be the GoCart 24-tray cartridge playback machine and the InstaCart 48-tray instant access playback machine.

IKEGAMI ELECTRONICS 3150

A new fully automatic, microprocessor-controlled color camera system will be unveiled, consisting of the HK-323 one-inch studio camera and the HK-323P portable ENG camera. Up to 40 cameras can be controlled by one MCP maintenance control panel, and triax remote operation is possible up to three miles from the control unit. In addition, a high-quality professional CCD camera will be introduced. Also new will be with PP-70 mini microwave link. Established products will include the HDTV telecine system and HDTV projection system; the HL-95 ENG/EFP camera utilizing both M-II and

Beta formats; the HL-79E ENG/EFP camera; the SC-500 economical studio and field color camera; the TKC-990 high-performance telecine system with computer control; and the line of broadcast color and monochrome video monitors.

See ad page 53

ILC TECHNOLOGY 212

Featured will be ILC's standard line of Daymax HMI lamps for television and motion-picture studio lighting. The lamps range in size from 200 to 12,000 watts, with a color temperature of 5,600 degrees Kelvin. The selection also includes single-ended versions and PAR's (para-

bolic reflectors).

IMAGEERING LASER DISK SYSTEMS, INC. 235

New this year is the ICMS Paintstore, an optical disk-based still-image management system, that allows the user to capture, paint, compose, and catalog up to 8,000 600-line NTSC digital still images. It's expandable to 4.5 million images with the 50-disk Writeable Disk Auto Changer. ICMS Paintstore offers forced perspectives, titles and borders, six fonts (with expandability to thousands of fonts), color ramps, real-time trajectory animation, and antialiasing. Also new is the DRAW photo library system, a 600-line, 8,000-frame digital optical disk (expandable to 4.5 million images) that allows the user to capture, preserve, catalog, search, retrieve, and reproduce still photo images. Paintstore and DRAW can both be used with Image Master software.

IMAGE VIDEO LTD. 2636

New this year will be the Model 9400 RGB (Y) routing switcher, fully self-contained, with built-in power supply. Items from the established line will include the 9600 high-density routing switcher; 8010 and 8020 master control switchers; 6200 broadcast routing switcher; 6010 and 6030 10x1 self-contained broadcast routing switchers; 7202 voltage monitor; and 7001C dual audio mix amplifier.

INNOVATIVE TELEVISION EQUIPMENT 3258

Will feature its H-50 fluid head, the H-16 fluid head with increased counter-balancing, the P-1 pedestal, and the P-8 remote dolly/pedestal. The entire line of camera support equipment will be featured.

INOVONICS 2434

Will introduce the Model 255 triband PWM stereo audio processor for FM broadcasting, and the Model 705 FM/FMX stereo generator featuring 16 kHz response, switchable preemphasis, overshoot-controlled lowpass filters, and FMX system available as a low-cost plug-in option. Other products will include the 200 Series audio processors for AM, FM, and TV broadcast and audio production; the 300 Series magnetic recording/reproducing electronics for studio recorders and mag film machines; and the TVU on-screen audio level display for teleproduction.

INTEGRATED TECHNOLOGIES, INC. 2787

Will feature Ani-Maker Plus and Image-Maker advanced 3D animation systems with multiple workstations, in NTSC and PAL versions, and with a digital film recorder interface. Software includes Metamorphosis for image transformation, Moveable Camera, and introducing Local Light Source and Moveable Multiple Light

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Phillystran is now protecting more than a thousand broadcast towers preventing white-noise arcing across ceramic insulators (they aren't required) eliminating problems with on-off cycling due to static discharge on steel guys.

With Phillystran HPTG, tower-guy maintenance and costly re-guying are problems of the past.

For all the Facts—including "Electrical and Mechanical Analysis of Synthetic Tower Guys"—call/write



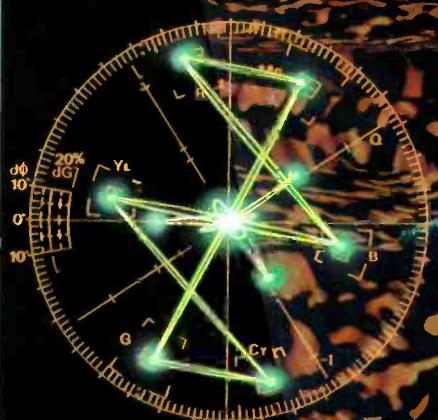
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NOW, A 1-INCH VIDEO TAPE THAT LOOKS GREAT TO EDITORS. AND ENGINEERS.

Introducing 1-inch EASTMAN Professional Video Tape, EVT-2000 (Broadcast Quality). With the durability to satisfy the toughest editors, and the signal characteristics to brighten the eyes of the most demanding engineer.

The latest advances in binder technology have produced a highly durable video tape that runs smoothly and withstands the ravages of heavy editing and still-framing without increasing headwear.

New EASTMAN Professional Video Tape, EVT-2000, is formulated to deliver clean, crisp, brilliant pictures and excellent audio performance. Chrominance and luminance are superior. Dropouts are minimal. EVT-2000 is recommended for production, post production, and heavy editing, while our economical EVT-1000 video tape is suggested for duplicating and syndication. EASTMAN Professional Video Tape, EVT-2000, is available in

C-format lengths from 34 to 188 minutes and B-format lengths from 34 to 126 minutes.

For details, write to Eastman Kodak Company, Dept A3067, 343 State Street, Rochester, NY 14650. Or call toll free 1 800 44KODAK (1 800 445-6325), Ext 864.



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Motion Picture and
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EVT-2000
PROFESSIONAL VIDEO TAPE (BROADCAST QUALITY)

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Sources, and a 32-bit 2D paint system with full color frame grip.

INTERACTIVE MOTION CONTROL 2771

Introducing a complete 2-D video animation system consisting of an 8-channel 3565 motion-control computer, 2X2 video animation stand, Canon J13 lens with IMC lens drive for computer-controlled focus and zoom, a video slide compound that can be easily attached to the table to manipulate slides and transparencies. Also new is the IMC Camera Mover system with a 16-channel IMC motion-control computer.

Information on other products will also be provided, including: the IMC video and film Model Mover; different combinations of the complete 2D and 3D video animation systems; the Camera Lifter with nodal point pan/tilt/roll head.

INTERGROUP VIDEO SYSTEMS 3312

Will feature its new model 9600 production switcher with Reflex (reprogrammable effects), and the new 4001 digital pattern generator, which interfaces with all post-production switchers. Established products to be shown include the 9300 and 9400 production switchers, the 8000 series master control switcher, the 1100 series routing switchers, and the Enhancer line

of optional and stand-alone equipment for production enhancement.

INTERNATIONAL MUSIC CO. 2920

INTERNATIONAL TAPETRONICS/3M 3052

The DCM-1 Dynamic Cartridge Monitor will be shown for the first time at NAB. It is designed to monitor cartridge performance and indicate when the cart is nearing its failure point so it can be pulled from service. The full line of cart machine equipment, including the Performance System, the Economy System, the 99B series with ELSA cartridge preparation system, the Delta series, and the Omega series, will be exhibited. Also on display will be the ESL V eraser/splice locator, the FB-1 telephone answering interface, and the ScotchCart II broadcast cartridge.

ITELCO USA 2765

Will display its lines of high- and low-power TV transmitters, FM transmitters, and 2 GHz microwave link.

ITS (INFORMATION TRANSMISSION SYSTEMS CORPORATION) 2415

Will show these new products: the ITS-75, a solid-state video modulator for older RCA transmitters; ITS-300, an ICPM mea-

surement set; ITS-12, a VHF exciter for high-level modulated transmitters; ITS-27, a VHF aural IF modulator for MTS conversion of RCA line transmitters; ITS-1658C, a 100-watt ITFS/MMDS amplifier. Will also show the ITS-20 UHF exciter and ITS-230 1 kilowatt UHF transmitter.

JAMPRO ANTENNAS INC. 3587

Will present its line of FM, TV high power and CP antennas, and RF filters.

JBL 2727

Will feature its line of studio monitor loudspeakers with titanium dome tweeters; Bi-Radial studio monitors; and Control monitors and mounting accessories.

JEFFERSON PILOT DATA SERVICES 3204

After the merger of Data Communications Corp. and Jefferson Pilot, this company will introduce JDS Autoselect III, a music rotation system, and Byline electronic invoicing. Also on hand will be the BIAS, MPI, and JDS systems for sales, traffic, film management, music rotation, accounting, and newsroom computing.

JENSEN TOOLS 2721

Will introduce an expanded line of economically priced tools, tool kits, and tool cases under the Telvac brand name. Also new will be tools for work with fiberoptic

Hear the great wireless sound.

Consider the size advantages...

Cetec Vega's R-33 PRO PLUS wireless microphone receiver mounts inconspicuously on a camera. Or on a tiny corner of your sound cart. Or in your pocket. Or on your belt, providing you with program-quality headset audio.

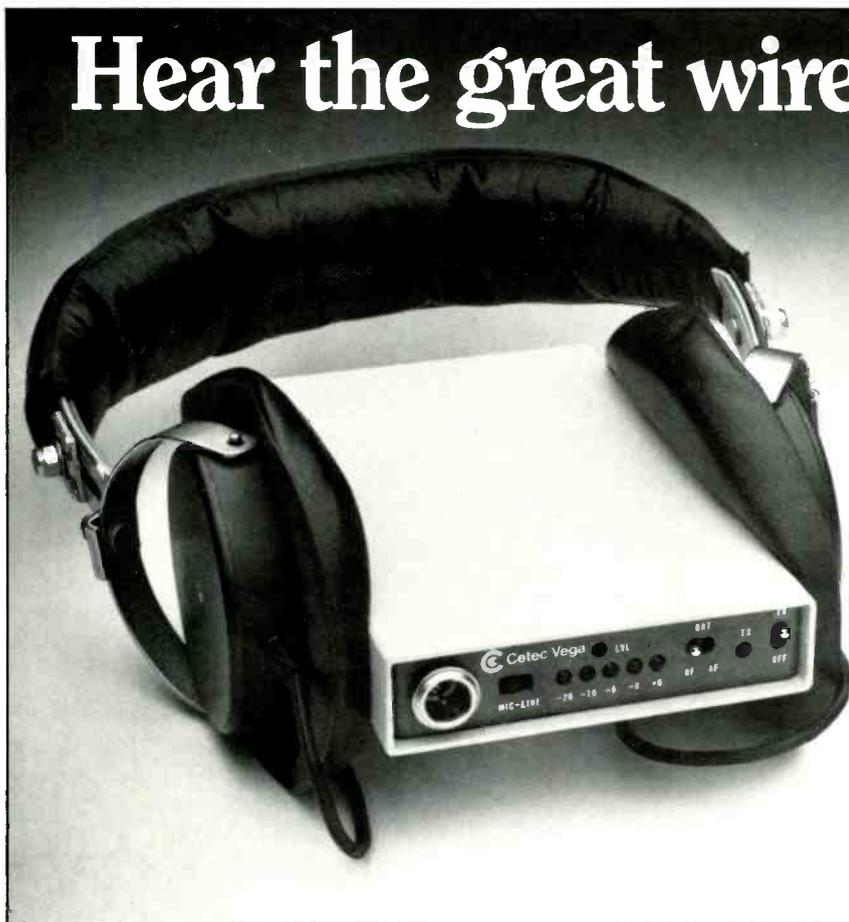
With the R-33 you have a wide choice of transmitters...any Cetec Vega DYNEX® II bodypack or handheld. A full complement of useful accessories is included.

The R-33 provides 8 hours of operation on a single 9-volt battery. Audio is studio-quality (e.g., over 100 dB S/N).

All this, in a rugged package less than 12 ounces, and only 3/4 x 3-1/4 x 5-5/8 inches (HWD). Available in two colors... PRO Brown/Cream or Camera Black.

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Year in year out, more and more Japanese electronic equipment arrives on our shores.

So it's especially gratifying that when one of the leaders in Japanese electronics needed a high tech SNG® truck — they asked HUBCOM to build it.

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HUBCOM built the first SNG® truck in the United States. We've built more than everyone else combined. And now we've built an SNG® truck on a Hino chassis for shipment to Japan.

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and wire cable systems, and other hard-to-find tools. The JTK-17 and JTK-87 tool kits will also be featured.

THE J-LAB CO. 2521

Will unveil a Y, R-Y, B-Y to RGB and sync transcoder especially for studio component players, along with an accessory that allows triggered sweep oscilloscopes to be used as precision waveform monitors. The regular line consists of free-standing and camera-mounted transcoders will be presented along with field playback modification for the Sony BVV-1 and -1A and the viewfinder SMPTE safe action, safe title generator.

J&R FILM/MAGNASYNCH MOVIOLA 3493

Products on display include the Lokbox hard lock synchronizer for use of film sound-editing techniques with video, and the Videola professional film to tape transfer machine for 16 and 35 mm. Also showing the full line of video and film products and equipment.

JOHNSON ELECTRONICS INC. 3451

Unveiling their new SCA (subsidiary communications authorization) products, the ST-TV and DC-TV for transmission of a second TV audio program over the air or in the pro channel for remote cueing. Also two new data transmission systems via SCA, the RXS DT-2400 AFSK (audio frequency shift keying) data tuner and the DT-9600, a frequency shift keying data tuner. Another new product to be shown is the STS II synthesized test set, used for measurement of the field strength and injection levels of an FM broadcast signal's two subcarriers. Will also show their complete line of SCA receivers, data receivers, and tuners, as well as their audio amplifiers, mixers, and professional FM receiving antennas.

JVC CO. OF AMERICA 3180

Will introduce a new model in the ProCam line of professional three-tube color cameras. The KY-950B, an upgraded version of the KY-950, has improved resolution of 700 lines and S/N of 59 dB, plus triax control and "hot shoe" viewfinder. Also new will be the RS-T900 triax adapter and a line of M-II recording equipment. Established products will include the KY-320B ProCam camera; the CR-8500 editing recorder, compatible with all major editing controller; the BR-7000 hi-fi duplicator; and the KY-210B three-tube camera.

See ad page 24, 57-64

KAHN COMMUNICATIONS 2922

The Flatterer, a patented device for antenna broadbanding, will make its NAB debut. The unit is designed to broadband any mono or AM stereo antenna in a single night. Also new will be Power-side for reducing interference and noise for sta-

tions not planning to convert to AM stereo by increasing power in one sideband; and Good 'N Loud, a patented device that provides AM loudness without the splatter and distortion of conventional methods. Other products will include the STR-84 AM stereo exciter and the Lines-Plus "gap-proof" frequency extender.

KANGAROO VIDEO PRODUCTS 2676

Will introduce several new carrying cases: the KVP-25 for Sony BVW-25 and BVW-21; the KVP-6400 for Panasonic AG-6400; the KRC-3BVF raincover for the Sony BVP-3 and BVF-50 viewfinder; the DAC-500 carrying case for the Panasonic AG-500 monitor; the KAC-8020 carrying case for the Sony PVM-8020 monitor; and KRP-KK Kangaroo Klips, detachable cable organizers.

KAVOURAS 2657

Will introduce the latest version of the Triton weather graphics and animation system, the AP Series art/paint package. Fully compatible with all Triton systems, the AP features accelerated response times, increased resolution, and enhanced graphics capabilities. Also new will be the latest Surecast weather maps and the new Radac 2000 color weather radar receiver system. Established products will include the Radac color weather radar remoting receivers, the Triton X comprehensive weather graphics and animation system, Weatherlink Vista high-speed satellite communications of instant video display of weather products, and Weatherlink Metro hardcopy weather maps and charts.

KAY INDUSTRIES 2511

Will show range of single- to three-phase converters.

KELTEC FLORIDA MICROWAVE PRODUCTS 2435

Featuring their new R60-300KU, a 300 watt Ku-band HPA in a 7-inch rack, and weighing 75 pounds. Also the new H60-300KU, an environmentally sealed hub-mounted 300-watt Ku-band HPA weighing 75 pounds. Both operate at 14.0 GHz to 14.5 GHz. Established products to be shown include the R50 low-power (20 to 125 watts) rack-mounted TWT amplifier, and the R90 high-power dual-drawer TWT amplifier, available in C-, X-, and Ku-band.

KEM ELEKTRONIK 2467

KEYLIGHT PSI GROUP 2789

Will present the Quartz/Color Ianiro range of "Arturo" HMI and incandescent softlights, plus the Matthews Super Crank heavy-duty light stand. The line of QuartzColor Ianiro HMI fixtures. Ianiro Bambino fresnels, and Matthews studio equipment will be featured.

K&H/PORTA-BRACE 2532

Will introduce several new products, including a Cordura padded tripod case, belt pack, shoulder case for Sony BVW-105 camcorder, and recorder case for the Sony BVU-150. The full line of Cordura nylon cases for recorders, wireless mics, cameras, and general production use will also be featured.

See ad page 171

KINEMATICS/TRUE TIME 2513

Will be exhibiting the Omega synchronized clock, which provides worldwide timing accuracy from +10 milliseconds Universal Coordinated Time (UTC) to +250 microseconds UTC, and the GPS-DC synchronized clock designed to provide extremely precise UTC time (+200 nanoseconds) for a variety of applications. Also on display will be National Bureau of Standards and U.S. Naval Observatory synchronized digital clocks with universal clock driver option for various analog and digital displays.

KINGS ELECTRONICS CO. 3464

Will be introducing new connectors for analog component video systems compatible with proposed SMPTE standards. RF coaxial and triaxial connectors, video patch cords, and patch panels will also be on display.

KINTEK, INC. 2455

Will introduce the KT-904PP stereo converter for synthesizing stereo tracks in post-production and the KT-904S stereo converter for FM and TV broadcasters. Also on display will be the KT-960 monogard, a correction system for reversed polarity feeds in mono or stereo, and the KT-932, a frequency blind and amplitude audio phase meter with one degree resolution.

KINTRONIC LABORATORIES, INC. 2540

Will show new products, including a low-power RF contactor, custom high-voltage insulator, a custom de-tuning unit with motor drive, and an FM patch panel. Also showing their AM directional antenna phasor cabinet, RF attenuator, isolation transformer, and fixed and variable inductors.

KLIEGL BROS. 3581

Will introduce a line of HMI's 575W, 1200W, 6000W and 12000W Fresnels; the Performer IV, a compact memory lighting control system, which controls up to 999 dimmers in up to 350 control channels; and the K-100 digital dimmer. The standard line of studio dimmers and fixtures will also be exhibited.

STL/ICR



Model 70FT3 transmitter with FMT-2 modulator (top).
Model 70FF3 receiver with FMR-2 demodulator (bottom).

For STL/ICR and other point-to-point microwave applications, Nurad offers the state-of-the-art in transmitters and receivers. The 3-Series of microwave equipment is a family of integrated IF heterodyne transmitters and receivers that can be configured for any desired system application.

The 3-Series transmitters and receivers feature the standard 70 MHz interface for EIA/CCIR baseband video and audio interconnect.

Our 3-Series transmitters/receivers and FM-Series modulators/demodulators can be configured for a wide range of systems:

- Transmit/Receive Terminals
- IF Heterodyne Repeaters for Multi-Hop Systems
- Repeaters with Baseband Drop and Insert Capability

Fault alarm detection and system diagnostic circuits are built into each unit for hot-standby protection systems, remote alarm systems and troubleshooting.

For more information about our STL/ICR systems, call us at (301) 462-1700.

NURAD

A DOVER COMPANY

KLINE IRON & STEEL CO., INC. 2797

Display will feature information on TV and FM broadcast structures including guy towers, self-supporting towers, platform towers, multiarray towers, space-frame structures, and special-type antenna structures for the broadcast industry and the military.

KNOX VIDEO 2611

Will introduce the K200 Chromafont II mid-priced character generator with eight fonts and 512 colors. The K40 Microfont low-cost character generator and K100 Chromafont mid-line character generator will also be shown.

KOBOLD LIGHTING 2834

LAIRD TELEMEDIA, INC. 3474

Will introduce a full range of add-on options to the popular Model 1500 character generator, including a high-resolution paint system with 35 nsec. resolution and 65,000 colors, a direct access keyboard, a 20Mbyte hard disk for storage of up to 16,000 pages of information, a color encoder with black burst generator, and a keyer/fader. Also new will be the Model 1500-S, a Spanish language version of the 1500; the Model 1500 Turbo, which consists of the Model 1500 character generator, direct access keyboard and hard disk; the Model 1500-T, which packages the 1500 with all the major options noted above; and the new value-oriented Model 1450 Gee Gee character generator that combines 35nsec resolution performance with a color encoder in a compact, standalone unit.

Established products such as the 1500 and 1500-PROM character generators; Font Compose, Data Tablet, and Camera Entry add-on modules; optical multiplexers; and equipment racks and consoles will also be on display.

LAKE SYSTEMS CORP. 3532

Will debut LaKart LS, a random access, automated library system capable of holding 500, 1000, or 1500 cassettes operable in Beta, Beta SP, M, or M-II formats (based on customer's choice). Software will also be available to allow the LS system to record any material, especially satellite feeds that can be preprogrammed into the LaKart computer terminal. Lake will also exhibit the standard LaKart system and demonstrate full system capability.

See ad page 125, 127

LANDY ASSOCIATES, INC. 3429

Will show the Ikegami "CCD" broadcast camera and HL-323P portable EFP camera, Paltex Eddi editing system, and Computron/Ampex Picturemaker system. Will also display examples of recent systems installations.

LARCAN COMMUNICATIONS EQUIPMENT, INC. 3314

Will introduce a 5 KW high-channel type TTS-5LH, externally duplexed VHF Transmitter and a 250-watt high-channel VHF translator. The TTC-30LHS 30 KW low-band VHF television transmitter and 25 KW FM single-tube transmitter self-contained in a 4-foot by 3-foot cabinet will also be displayed. There will also be demonstrations of MTS capabilities with LARCAN'S TV-1C Exciter and LARCAN microprocessor control for TV transmission.

LDL COMMUNICATIONS, INC. 2417

Will introduce a new low-band top-mounted CP antenna for TV and FM applications and a UHF antenna capable of high-power multichannel operation. Other products on display include broadband panel antennas for TV and FM applications, multichannel FM and TV combiners, and various models of broadcast towers.

LEADER-BRAC INDUSTRIES, INC. 2542

The new patented leader tape/splicing tape dispenser for 1/4-inch and half-inch audio tape will be featured. It automatically dispenses and cuts leader tape and splicing tape to all standard angles on the editing block, and it mounts on the side of all recording machines.

See ad page 4

LEADER INSTRUMENTS CORP. 2727

Will unveil several new products, including the LBO-5860B, a low-cost waveform monitor without line selection; the LCG-410 video test signal generator with additional LCG-420 plug-in units; LCG-409 battery powered video test signal generator with built-in modulator; LCD-100 battery powered DMM/digital storage scope; LBO-315 battery powered analog oscilloscope; LPS-2801 programmable DC power supply. Other products on display include the LBO-5865 state-of-the-art full line selection waveform monitor, LVS-5850B vectorscope, the LBO Series of oscilloscopes, LFM-5863A EFP/ENG battery operated portable monitor, and the LCG Series of signal generators.

L.E.A. DYNATECH, INC. 3332

Introducing its Total Facility Protection Concept (TFPC) for providing complete power protection of all power interfaces. Will also be exhibiting the SE series-hybrid AC line surge eliminator designed to protect transmitters and microwave transmission sites from high voltage spikes; the MB Kleanline electronic filter system that combines surge protection with RFI/EMI filtering and sine-wave tracking noise limiting for sensitive computer loads and studio equipment.

LEASING CONCEPTS 2822

Will present its specialized credit leasing services for the broadcast industry.

LEBLANC & DICK COMMUNICATIONS See LDL 2417

LECTROSONICS, INC. 2445

New products to be shown are the H185 highband plug-in transmitter for hand-held microphones, and the QUADmini, a four-channel highband receiver/mixer for multichannel field use. Also new is the PRO-185D, a fixed-frequency highband diversity wireless microphone system for field and studio use. Another new product is the PROMini miniature wireless microphone system, featuring a pocket-size high-band all-aluminum receiver. Other products featured are the MAXI-Mouse portable audio monitor and the full line of studio and field wireless microphone systems in single and multiple-channel configurations.

LEE COLORTRAN, INC. 3598

Introducing the MicroPro Series of six- and eight-lamp units for ENG/location lighting and the portable 720W Reporter Light with three interchangeable optical systems for hand-held and stand-mount applications. Also on exhibit will be a complete line of HMI spotlight systems, six- and eight-inch 1 kW fresnels, and the Prestige Series of dimming and control devices.

LEITCH VIDEO OF AMERICA, INC. 3559

Will introduce the DSS-3100N digital slide store system, which uses an IBM AT personal computer with SCSI interface; the SPG-1510P PAL sync pulse generator; the ITG-3400 vertical interval test generator and inserter; the SCH-7000 display for SC/H data, H phase, color frame, and time code framing; ATG-880 audio tone generator; and the ADA-881 low impedance audio DA. Other products on display include the 2500 Series transmitter and studio and transmission 10-bit digital test generators; the 660/860 line of audio/video DAs; the CSD-5300 clock system with SMPTE, EBU, impulse drivers, and displays; the DAC-5000 smart digital clock with self-starting hands; the NTSC/PAL master/slave sync pulse generators; and the DFS-3000N frame synchronizer with VIR corrector.

See ad page 128

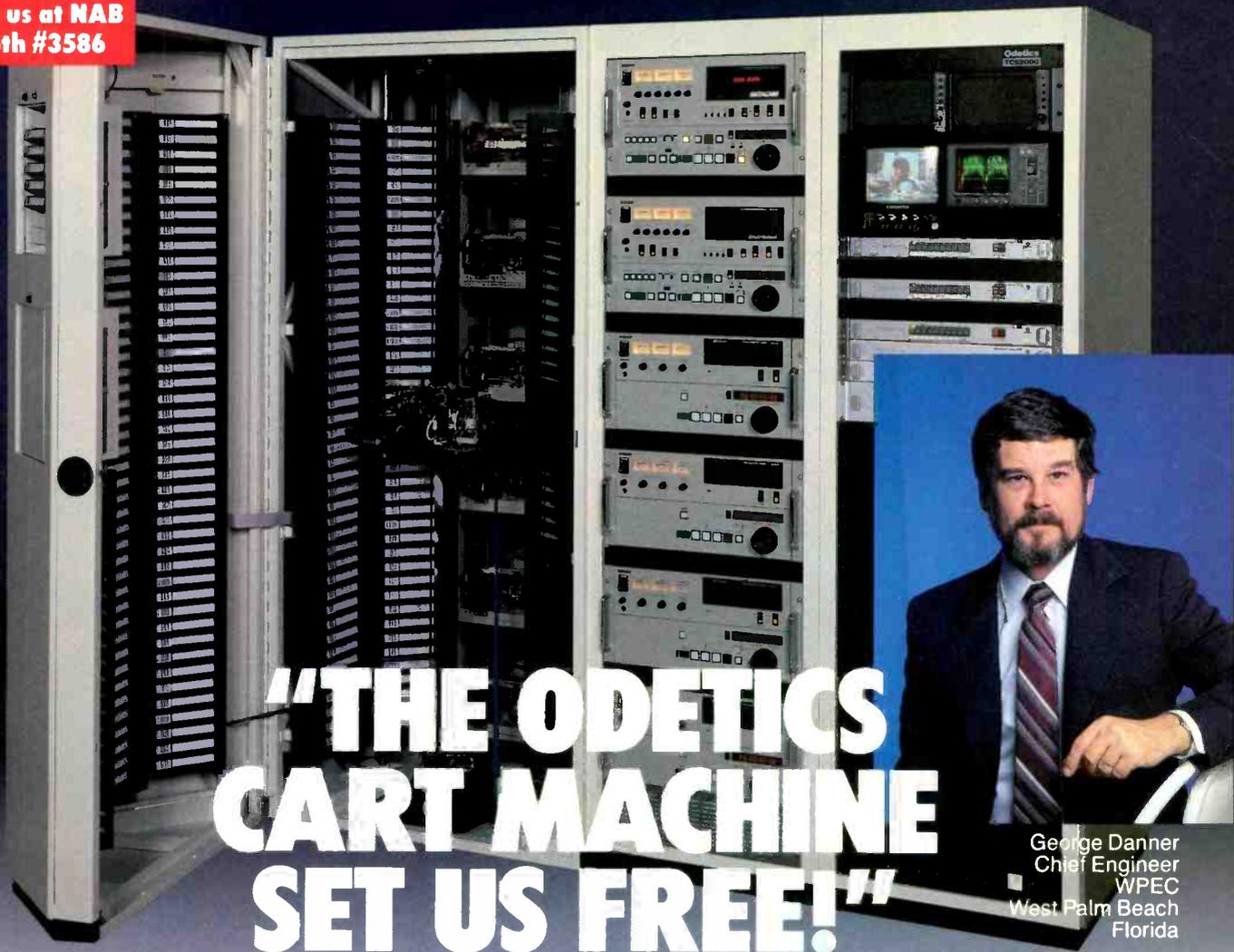
LEMO USE 2805

Will feature its compact connector series capable of 500 V dc and 350 V ac at 3 A per contact. The full line of connectors for audio/video applications will be shown.

LENCO, INC., ELECTRONICS DIV. 3056

Will introduce the PSG-313A frame resident digital sync generator with mul-

See us at NAB
booth #3586



"THE ODETICS CART MACHINE SET US FREE!"

George Danner
Chief Engineer
WPEC
West Palm Beach
Florida

Now that the engineers at WPEC are free from the routine of continually handling carts, they have more time to be engineers.

As George explains:

"We air about 300 to 450 carts per 24 hour period. Before we installed the Odetics Cart Machine, our engineers had to devote a better part of their shift to filling carts and monitoring the programming system. With the Cart Machine working for us, we spend a lot less time handling carts. It means that for the first time we're free to keep a closer watch on station operations and attend to other responsibilities."

The Cart Machine can automatically manage, record and play-to-air all forms of spots and programs. Besides reducing cart handling time at WPEC, The Cart Machine's reliability allows the station to operate without dub reels. The Cart Machine even makes it simple to air the new 10 and 15 second spots.

Transfer of the daily program schedules from the traffic department is smoother because the Cart Machine interfaces with traffic computers and automatically downloads the schedules. Armed with a 65,000 cart database and 1,600 event look-ahead feature, The Cart Machine can automatically preplan spot play lists hours or even days in advance of airing.

The Cart Machine is available in your choice of small formats.

Call now and start streamlining your station operations with The Cart Machine.



The Cart Machine from Odetics

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Anaheim, CA 92802-2907

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In California call 800-238-4422
or 714-774-2200

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ARTSTAR
presents...



... a new workstation and high-speed local area network system... the incredibly fast ARTSTAR is now even faster!



ARTSTAR 3D now features a new workstation designed to provide outstanding video graphics production and the ability to transfer multiple images via the popular Ethernet local area network system.

The possibilities are amazing: a cost-effective, high-speed, error-free method of accommodating multiple users on-line.

- 
- Share data and images with other ARTSTAR systems
 - Render images off-line, then send them to other workstations
 - Paint images simultaneously and interactively
 - Transfer finished graphics to laser disk—digital storage of 1,200 24-bit images on a single disk

And, ARTSTAR is the *only* combination 8, 24, and 32-bit high-resolution paint and 3D animation system available. This unique flexibility means you can actually merge 8 and 24-bit graphics into 32-bit images! Plus, an optional Motorola 68020 processor and array co-processor can *triple* system speed.

ARTSTAR has always been fast—it's always been powerful—it has become the price/performance system of choice among professional video graphics users. Now we've made the best even better—with *flash graphics* capability.

See ARTSTAR 3D at NAB—Dynatech Booth #3128. Let us give you a demonstration of FLASH GRAPHICS.

actual raster photos

ARTSTAR
COLOR GRAPHICS SYSTEMS INC.

DYNATECH Broadcast Group

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tifunction gen-lock and full RS170A specifications. Other products on display include NTSC and PAL master sync generators; video, audio, and pulse DAs; videoscopes; NTSC-RGB decoders; PC resident RGB-NTSC encoders and decoders; color monitors; processing amplifiers; NTSC video test sets; noise meters; frame resident sync distribution equipment; audio monitor amplifiers; and digital TBC.

See ad page 51

LEXICON, INC. 133, 136

Exhibiting the Opus Audio Production System, a fully integrated, random access digital workstation combining recording, nondestructive editing, time alignment, mixing, panning, overdubbing, and signal processing capabilities all in the digital domain. Up to eight hours of instantly accessible digital audio can be stored on the Opus's hard disks. Established products on display will include the Lexicon 2400 stereo audio time compressor/expander with SMPTE time code, programmable relays, and remote capabilities; the Lexicon 480L digital effects system; the Model 1300 digital audio delay; the 200 digital stereo reverb; and the PCM70 digital effects processor/reverb unit.

LIGHTING METHODS, INC. 2673

Will introduce the L86 installation dimmer rack and the L86 dimmer pack, featuring 10, 20, 50, and 100A plug-in dimmer modules with plug-in electronics and accessories that can be arranged in portable or permanent racks. Also new this year is the Concept 512 computer control console that doubles previous capacities and increases update speed. Existing products on display include the Idea, Designer, and CH200 control consoles and the SD series of individual dimmers.

LIGHTNING ELIMINATORS & CONSULTING (LEC) INC. 151

Will be showing dissipation and array systems designed to prevent lightning strikes on towers, tanks, buildings, and other facilities; rechargeable, chemically activated grounding electrodes; and lightning warning systems.

LISTEC VIDEO CORP. 3468

Will introduce a computer-driven newsroom prompter that automatically formats downloaded text for prompting while being controlled by either a host computer or local control box (accepts any standard word processing program). Will also exhibit full-range studio prompters with 15-inch and 19-inch CRTs, a 9-inch ENG/EFP portable prompter, and long and short script tables for various types of script.

LOGITEK 2807

Will show the Crossfire automated audio crossfader for A-B roll editing or auto-

mated radio crossfades between two stereo sources and the six-channel, rack-mountable Stereorack audio console. Existing products on display will include the Auditorack and Perfectionist audio consoles, audio DAs, LED audio level indicators, phono preamps, speakers, audio power amps, and timers.

LOWEL-LIGHT MFG., INC. 2610

Introducing the VIP System consisting of three small, highly compatible professional lights and a wide range of light control and mounting components. Also debuted will be the Lowel Light-Array fixture with six standard four-foot fluorescent tubes that packs into a single portable case with its own boom, ballast, barndoors, and stand.

LPB INC. 3338

Will unveil its new line of Signature III broadcast consoles as well as updated versions of the Signature II Series. Will also exhibit the Citation Series and Alpha Series of broadcast consoles, distribution amplifiers, studio furniture and a full line of AM transmitters.

L&R COMMUNICATIONS LTD. 2417

Will exhibit examples of its tower masts and tower rigging hardware, as well as preassembled and portable equipment shelters.

LTM CORP. OF AMERICA 2537

New products will include 575W and 1200W Mark III HMI softlights, 8x200W Mark III multipar, 270W HMI sungun, and a line of carbon microphone poles. Also on display will be a full range of HMIs, pepper Fresnels, fiberoptics, and the complete line of Studio Line lighting fixtures.

LUXOR CORP. 237

LYON LAMB VIDEO ANIMATION 3492

Will feature the ENC VI color encoder/sync generator, with NTSC composite and Y, R-Y, B-Y component outputs. Interfaces for the VAS IV and VAS V animation controllers allow them to talk to Hitachi HR-230 one-inch VTRs and Panasonic AU-300 half-inch VCRs. The VAS DELTA animation controller has an interface for the Sony BVW-40 Betacam VCR.

3M BROADCAST AND RELATED PRODUCTS DIV. 3120

Will be showing the 3M 324 master control switcher and the new 3M ESBUS machine control system based on serial communications standard being developed by SMPTE and the European Broadcasting Union. Also on display will be the D-6000 Panther, a graphics generator with disk library, drawing pad, and camera loader, as well as the D-5000, D-3600, and D-

1512 character generators and Series H and Series X routing switchers.

See ad page 163

3M MAGNETIC AUDIO/VIDEO PRODUCTS DIV. 3120

Exhibiting 3M 479 and 480 one-inch videotape; PB/BC videotape in five- and 20-minute lengths, 226, 250, 806, and 808 audio mastering tapes; Cinetrak magnetic audio film for motion picture soundtracks; and MBR ¼-inch videocassettes.

See ad page 6-7

3M OPTICAL MEDIA DIV. 3120

Will exhibit mastering and replication capabilities of videodisks and CDs featuring customer applications.

M/A-COM MAC, INC. 3280

Introducing a terrestrial microwave system operating at 18 GHz that is fully compliant with RS 250B short haul and compatible with the company's existing 23 GHz product (also wing heterod subcarriers with a full line of accessories in portable and fixed configuration from 2 to 40 GHz.

See ad page 88

MAGNI SYSTEMS, INC. 2827

The 2015PL programmable test signal generator will be introduced. A new version of the 2015, it offers an even broader range of test signals, including PAL, NTSC, CAV, HDTV, and SMAC.

Magni will also feature: the 1515 test signal generator, which provides component and NTSC composite test signals; the Models 1520 and 1527 combination waveform monitor, vectorscope, and test signal generator; and the economical Model 1510 test signal generator, which provides a wide variety of NTSC test signals.

MAGNUM TOWERS, INC. 2901

Will show its range of tall guyed towers for FM and TV transmission.

THE MANAGEMENT 2512

The EZ Log basic computer traffic and billing system will be shown, and also Super Log traffic software.

MANHATTAN PRODUCTION MUSIC 2550

Will have a music library specifically for broadcast use, including theme, commercials, and a package just for TV stations.

MARCOM 2433

New this year is the Model 711 TV stereo generator, a value engineered version of the Marcom 710. The 711 is a single rack-high unit with limited front panel control and LED metering. Also showing are: the Model 710 MTS TV stereo generator; Model 730 off-air TV stereo metered receiver with VU and LED metering along with a 600 ohm balanced stereo output; the Model 701-00M stereo modification

kit for converting a TFT 701 or 702 to monitor BTSC stereo; Model 520 FM and TV stereo audio processor; the C.N. ROOD 114 and 110 5 KHz two-line frequency extender (portable and fixed); and the SC-203 and 204 FM stereo digital stereo generator.

MARCONI COMMUNICATION SYSTEMS USA 3572

Will show its 30 kW VHF high-band transmitter along with representative sections of a 500 kW HF transmitter. A 1 kW solid state FM Eddystone transmitter will be there, plus a B7500 UHF exciter and pulser for high-efficiency klystron operation.

MARTI ELECTRONICS, INC. 3496

Will show the new models RPT-30 remote pickup broadcast transmitter, the ATS-15D automatic transmitter switcher, TSL-30 transmitter-studio link, and ARS-30 automatic repeater system. Also showing are the models STL-10 spectrum-efficient stereo STL, MW-500 microwave booster, RPT-2 battery-powered portable RPU transmitter, RPT-15 portable/mobile RPU transmitter, AR-10 portable/mobile RPU receiver, CR-10 rack-mounted base station receiver.

MATTHEWS STUDIO EQUIPMENT 3220

Will be introducing new dolly and stand lines. Lighting diffusers, skrimms, and grip equipment will also be on display.

MAXELL CORP. OF AMERICA 227, 229, 326, 328

Will be introducing new DAT cassettes; one-inch, half-inch, and ¾-inch open reel tape; M-II format prototypes; VHS pancake for high-speed duplicators as well as regular inch cassette loading; a portable nicad power pack; professional audio/video cables; and new packaging for ¾-inch and half-inch cassettes.

See ad page 68

MAZE BROADCAST INC. 107

A used broadcast equipment broker, Maze will provide information on its services, highlighted at this year's show by a closeout sale on new GE Gemlink 23 GHz microwave systems.

McCURDY RADIO INDUSTRIES 3028

Will premier a digital audio storage system. Also new will be the ADU-11 audio synchronizer, the ATS-100 stereo audio meter panel with dual VU and PPM meters, the CS-950 digital intercom system, and a satellite monitor switcher. Regular line products will be the SS-8800 series on-air and production consoles, audio distribution amps, prewired audio jackfields, and an audio production/edit mixer with serial interface.

See ad page 79

McDONNELL DOUGLAS ASTRONAUTICS CO. OPTO-ELECTRONICS CENTER 2546

Will show the VS400 broadcast-quality fiberoptic transmission system, which meets RS-250B short-haul specs. A modular system, the VS400 features individual plug-in transmitters and receivers, and is available with 820 nanometer or 1300 nanometer LED and laser sources, and is for multimode or single-mode fiber.

MEDIA COMPUTING 2803

Will show the following software: Angis, for interfacing with character generators; Wire Editor wire service management software; Assignment/Archives newsroom database software for organizing assignment desks; Producer's Rundown for automated rundown creation; and PC Prompter for large type, on-screen display and creation of scripts.

MEDIA GENERAL BROADCAST SERVICES 3335

Will feature production libraries, sales production services which include jingles, and four music formats: Your Country, Hit Rock, Action, Headliners, as well as contest and promotion packages, station IDs, custom client jingles.

MERLIN ENGINEERING 3408

Will unveil three complimentary software packages for master control of Betacarts and other tape machines. The IBM-PC-based O-Driver system allows operation directly from a traffic system of Betacarts either alone or in conjunction with other tape machines. The related Bar Keeper system manages and controls carts in the Sony machine by reading bar codes on carts, while Play Lister logs and manages the use of cassettes, also via bar codes. A demo will be up and running with a Betacart at the show. For the regular line, there will also be a new multistandard decoder to enhance the standards converter, plus new, improved versions of standard products.

MICRO COMMUNICATIONS, INC. 3438

New this year are dual-channel combiners for multiple UHF-TV stations on a single antenna, and high band pass filters. Also showing the full line of transmission lines, diplexers, switches, and antennas.

MICRODYNE CORP. 3520

Will feature new fully agile C/Ku-band satellite video receivers for broadcast (the 100-BKR) and for cable (1100-CKR). Also showing a fully programmable C/Ku TVRO, a transportable Ku uplink, C and Ku SCPC equipment, and data distribution equipment.

MICRON AUDIO PRODUCTS 2752

Showing a complete line of wireless mi-

crophone systems for ENG, film, studio, and theater, including the CNS-500 series with complimentary noise suppression, and the MDS-2 modular multichannel space diversity system.

MICROPROBE ELECTRONICS, INC./MEI 2620

Will showcase the Digisound hard disk-based digital audio storage system. Also shown will be automation programmers and controllers.

MICROSONICS 2543

Will bring its 1H and 2H glass video delay lines as well as equalized filters and delay lines for video processing.

MICROTIME, INC. 3086

Will introduce the RP-1, a 3-D digital video effects system with a complete range of effects and a matte channel to process "flying keys." The RP-1 is available in composite or component versions, and as a 2-D system with upgrade to add rotation and perspective, and can be configured for dual-channel operation with plug-in digital compositor option. Will also introduce a new high-performance full-frame TBC with freeze and noise reduction Vari-Track. Other featured products include the T-300 series of TBC's, the Genesis 1/ACT 1 digital video effects system, the T-220 Format Interchange TBC, and the S-230 frame synchronizer/TBC.

MICROWAVE RADIO CORP. 3280

A complete line of microwave products in the 2 GHz through 40 GHz range.

MIDWEST COMMUNICATIONS CORP. 3210

Will show the S-1 flyaway transportable Ku-band uplink system, consisting of 1.8 meter antenna with a two-part prime-focus offset feed assembly, yet transportable as checkable airline luggage. Also showing the S-18 Ku-band satellite newsgathering vehicle (SNV), with 1.8 meter offset antenna on an 18-foot van, and the S-23 SNV with 2.6 dual reflector antenna on a 21-foot van.

See ad page 15, 17, 19

MILLER FLUID HEADS (USA) INC. 3440

Will introduce the new Miller 20 and Miller 80 fluid heads with counterbalancing and the new Midi and Maxi tripods for ENG/EFP. Also showing the Miller 30/50 fluid heads with counterbalancing and multi-step drag control, a complete range of camera-support products designed for all ENG/EFP operations, and a complete range of camera-mount accessories.

MINOLTA CORP. 2810

Featuring the TV color analyzer II to provide objective setting of white balance on color monitors, and the full line of light and color-measuring instruments.



Best Show on Wheels. The New Video 20 Pedestal System.

When you and your EFP camera are on the go, get maximum portability plus studio comfort with the Video 20 Pedestal System from Sachtler. A pneumatically supported center column with its pressurized balance system provides multiple load capabilities for smooth and precise on air movement. The steerable dolly assures equally smooth and precise tracking. Also, the Video 20 Pedestal can be combined with the Sachtler Semi-Dolly or used as a stable, stationary unit. For lightweight portability and professional results, the Video 20 Pedestal System proves itself a champion in action. Everywhere. Every time. Of course all Video 20 Pedestal System combinations come with Sachtler's guaranteed leakproof fluid heads for the ultimate in smooth, precise shooting.

That's what we are known for. World-wide. For detailed information, please contact us.

Sachtler. The System.



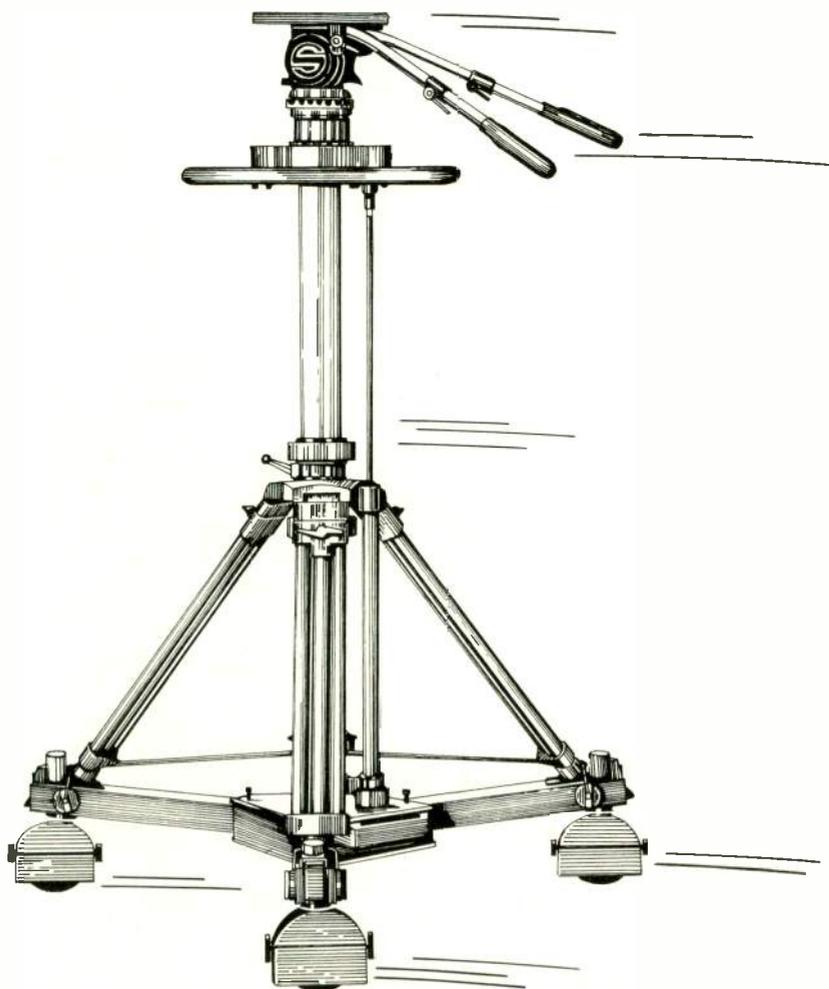
Sachtler Corp.
55 North Main Street
Freeport, N.Y. 11520
Phone (516) 867-4900

3316 W. Victory Blvd.
Burbank, CA 91505
Phone (818) 845-4446

Sachtler GmbH Dieselstr. 16,
 D-8046 Garching/München,
 West Germany.

See us at NAB Booth #3419

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MITSUBISHI INTERNATIONAL CORP. 2476

Showing the new DAS-2 digital audio storage system by NTI (Nippon Television Industry Corporation), available in four frequency ranges, three modes of operation (automatic, semiautomatic, or manual), mono and/or stereo playback, and an RS-232 bus for positive tracking of air play events.

MITSUBISHI PRO AUDIO 3530

Will show the Westar 8300 film/video production console as well Mitsubishi PCM products such as the X-850 32-track digital recorder, X-400 16-track recorder, X-86 2-track recorder, XE-2 digital editor and the DIF-32 an AES/EBU standard interface. Assorted Westrex 35 mm magnetic film products and digital master motion controllers.

MODULATION SCIENCES, INC. 2811

Introducing the StereoMaxx spatial image enlarger for all stereo broadcast stations AM, FM, and TV. Introducing the ModMinder, a TV audio status panel that works with wideband TV demodulators to give quick and accurate readings of total modulation, peak indications, and status of all subcarriers. The complete line of MTS equipment will be shown, including the TSG stereo generator, SRD stereo reference decoder, and the TV Sidekick SAP and PRO channel generators. Radio products include the FM Sidekick and Data Sidekick SCA generating systems, CLD composite distribution system, and CP803 composite processor.

MODULITE/BARDWELL & McALISTER 2746

Showing their complete line of lighting fixtures and grip equipment.

MOLE-RICHARDSON 3368

Will show a line of Moletronic dimmers, fresnels, HMI fixtures, Solarspots, Solar-Arcs, Molepars, softlights, lighting kits, cyc strips, quartz lights, hangers, adapters, and grip equipment.

MOSELEY ASSOCIATES, INC. 3202

Will show their new MDU dial-access remote control, and the new PCL-600 studio transmitter link. Also featured at the Moseley booth will be the MRC-2 and MRC-1600 remote control systems, and the PCL-606 studio transmitter link.

MOSES & MITCHELL 219

MOTOROLA C&E 3442

Will present its 23 GHz microwave antenna for broadcast use. Also on hand from its lines of communication equipment will be the Dynatac portable cellular telephone, R-2001 analyser, People Finder paging system, and the OPTRX alphanu-

meric paging system.

MOTOROLA INC./AM STEREO 3539

The latest generation of C-Quam AM stereo exciters and modulation monitors will be shown, and there will be a new display of C-Quam AM stereo receivers. Information on free station evaluation for stereo conversion and on-site lease arrangements will be provided.

MPO VIDEOTRONICS 2549

MULTI-TRACK MAGNETICS 2801

Will show the new D-108/DCS 10x-speed recorder/reproducer and the R-104B/DCS portable transfer machine. The D2 Series of recorders and reproducers from Rangertone will also be on display.

THE MUSICWORKS, INC. 2443

Information on radio syndication formats will be provided, including Alive Country, Country 80, Casual Country, and Factor 5. Also the Country Oldies Library and the Weekend Announcer Service.

MYCRO-TEK 2490

Will show the Superstar system with super-edit off-line text editor and single/dual channel capability. Also shown will be the Max and Ernie low-cost CGs.

NAC, INC. 2932

NADY SYSTEMS, INC. 2902

Will introduce the new 501 VR VHF wireless receiver for video production and stage use. Also showing the 601 VHF and 501 VHF wireless systems, and the Nady 49 MHz short-range FM communicators, including the Model PRC-1X (bodypack), PRC-2X (integral headset), PRC-3X (full duplex body pack), and PRC-4H (hand-held unit).

NAGRA MAGNETIC RECORDERS, INC. 3453

Will be demonstrating new RS422 interfacing software for its T-Audio system and the CMX video editor, which enables the CMX to handle audio signals like video. Nagra will also introduce a new interface for the T-Audio and the Rank Cintel flying-spot telecine. Other products on display include the portable IV-STC 2-channel audio recorder with time code and the portable one-inch C-format VPR5 VTR.

NAKAMICHI U.S.A. CORP. 2456

Will show the MR-1 discrete head professional cassette deck and the MR-2 two-head professional cassette deck with "silent mechanism" transport, wired remote input and output, and Dolby-B and Dolby-C noise reduction. Also featured will be the Model SP-7 headphones.

NALPAK VIDEO 2800

Will introduce its NVS lines of weather

resistant, lightweight cases, a moulded rack-mount case, and TKTK moulded ATA cases. They will also have their 7 sizes of Tripak moulded tripod cases, Rel-Air ATA moulded case, and Vertex video test charts and slides.

NARDA MICROWAVE CORP. 2545

Unveiling the new 8520 field/power density meter, featuring a single probe that can measure both the electric and the magnetic field components of a transmitted signal. Also showing the 8600 and 8700 series of field/power density meters designed for FCC OST Bulletin 65 compliance measurements. And the full line of coaxial portable power meters, the microwave path alignment system, and RF and microwave components will also be featured.

NAUTEL 2658

Will be featuring the Ampfet product line of totally solid state modular AM broadcast transmitters in powers of from 400 watts to 50,000 watts.

NEC AMERICA 3161

Will show the SP-3A CCD ENG camera, featuring built-in variable speed electronic shutter and universal integration with on-board VTR formats. Also will show the DVE system 10 and 10C digital video effects, which now feature new curvilinear effects to provide the appearance of 3-D curl within the 2-D raster. Another new highlight is the new size low-band PCN-1430 30 kW VHF transmitter, which features solid state componentry and highly dependable exciter. Also showing for the first time at the NAB is the PCU-960 60 kW UHF transmitter. Featured will be a full line of one, two, and three-chip CCD cameras for image processing, motion analysis, and other non-broadcast applications. Also featured will be a new NEC digital video recorder that utilizes new technology, and the Model TKA-500 routing switcher.

See ad page 26, 27

L.E. NELSON SALES/ THORN EMI 2918

Will show its 1200 W par 64 C.I.D. daylight source; the 575 W C.I.D. daylight source; the DSE 1000 W and DSF 1500 W Scoop lamps; and FFF FFR FFS 1000 W par 64 lamps; and also feature the complete range of 120 volt and 220/240 volt studio tungsten-halogen lamps.

NEOTEK CORPORATION 2782

Will present the NAB debut of the Elan mixing console. The Elan is designed for radio, television, and video post production facilities, and features direct digital interfaces for general purpose interface lines for any video editor, MIDI or SMPTE computer editor, MIDI mute automation, or any standard or custom automation pack-

COMPARED TO OUR NEW APOCHROMATIC ZOOM, OTHER LENSES ARE A LITTLE ROUGH AROUND THE EDGES.



Chromatic aberrations. They can cause loss of picture detail. Color fringing. Poor color registration.

The introduction of broadcast CCD and high quality tube cameras means compromises like these are no longer acceptable in zoom lenses. To meet these new and demanding camera specifications, Schneider introduces the TV-56 APO-VARON 14X ENG/EFP Zoom.

The TV-56 is a major leap forward in TV zoom technology. Its true apochromatic design focuses the image formed in the three primary color channels in precisely the same image plane.

The result is rather eye-catching. Both longitudinal and lateral chromatic aberrations are significantly reduced. MTF is increased, and picture quality is greatly enhanced.

Lightweight and compact with a sturdy weather-proof housing, the TV-56 is the type of rugged performer you'll value for other reasons, too.

It has a 2X extender, macro focus, and a unique servo iris control built into the zoom pistol grip. The TV-56 is available with positional servo focus. And the lens accepts a wide range of EFP accessories, including an aspheric attachment for superwide fixed focal length.

So if you're concerned about your image, do something about it. Get Schneider's new TV-56 APO-VARON Zoom.

For more information or a demo, contact:
Schneider Corporation of America, 400 Crossways
Park Drive, Woodbury, NY 11797, (516) 496-8500.

Western U.S.A. Service: 861 Production Place,
Newport Beach, CA 92663, (714) 631-7430.



 **Schneider**
KREUZNACH
SHOOT FOR THE BEST.

Circle 192 on Reader Service Card

JANUARY 29th, 1987 . . . TOWNSEND ASSOCIATES, INC. OF WESTFIELD, MASSACHUSETTS ACQUIRED BROADCAST SYSTEMS, INC. OF AUSTIN, TEXAS.

TOWNSEND, A LEADING MANUFACTURER OF TELEVISION TRANSMITTERS, PURCHASED BROADCAST SYSTEMS, A MANUFACTURER OF TELEVISION STUDIO EQUIPMENT AND INTEGRATOR OF COMPLETE TELEVISION SYSTEMS, TO FORM TOWNSEND BROADCAST SYSTEMS.

TOWNSEND BROADCAST SYSTEMS' EXPANDED RESOURCES OF SALES, ENGINEERING, AND MANUFACTURING PROFESSIONALS CAN NOW SUPPLY THE ENTIRE EQUIPMENT NEEDS OF ANY TV STATION.

CALL THE PROFESSIONALS . . . TOWNSEND BROADCAST SYSTEMS . . . THE SINGLE SOURCE OF SUPPLY TO THE TELEVISION BROADCASTER, WHETHER HIGH OR LOW POWER, VIDEO OR RF, STUDIO OR TRANSMITTER, VHF OR UHF

TOWNSEND BROADCAST SYSTEMS

. . . AMERICAN QUALITY - SUPPORTED WITH PARTS AND SERVICE

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BROADCAST SYSTEMS INC.

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NAB Booths 3305 and 3306

age. The Elan console is available with 28 or 36 inputs, or can be customized for user requirements.

NETWORK PRODUCTION MUSIC, INC. 2627

Will be introducing the Network music and sound effects libraries on compact disc. There will be initial introductions of 54 music CDs and 40 sound effects CDs.

RUPERT NEVE, INC. 3318

Will demonstrate a V Series multitrack analog music recording console with the Necam 96 automation system. The V Series is available in 36-, 48-, and 60-channel frame sizes and features Neve Formant Equalization, 8 mono/4 stereo auxiliary send buses, and an advanced mix cue system that allows the user to hear the full mix and enables the engineer to manage the monitor mix without effecting the cue balance. Also on display will be a 32-channel 5106 system from Neve's 51 Series of multiple application stereo broadcast/video or film post-production consoles, and 12- and 8-channel models from the 542 Series of portable and table-top stereo broadcast consoles.

NEW ENGLAND DIGITAL 228

Will be demonstrating the Synclavier digital audio system, a comprehensive workstation for composing, recording, editing, performing, and music printing. Showing also are: Synclavier's new Direct-to-Disk digital multi-track recording option; Sample-to-Memory, offering stereo sampling capability at 100 kHz per channel; and Engraving Quality Music Printing, a new music printing software supporting a variety of output devices including digital typesetters.

NORMEX
See **TELNOX LTD. 3414**
See ad page 50

NORPAK 2574

Will show a full range of teletext products, including the TDS3 teletext distribution system, TMS3 teletext management system, and the TTX5 and TTX6 teletext receivers. The TTX6, a receiver designed for the business marketplace, will be making its debut at the show.

NORTRONICS COMPANY, INC. 3384

Magnetic tape heads for broadcast reel-to-reel and cartridge recorders.

NOVA SYSTEMS 2778

Will show the Nova 620 full-frame TBC with freeze field/frame operation, and the Nova 511 32-line window digital TBC, both with DOC and heterodyne or subcarrier feedback modes. Also showing the Model 501 32-line window digital TBC for subcarrier feedback operation only.

UPGRADE YOUR ENG SYSTEM WITH MII



If you use 1/2", 3/4" or any combination, switch to MII and get high performance and overall cost reductions.

The MII Broadcast System is designed to enhance your ENG operations. With product like the AU-400 Camera Recorder that offers a combination of performance and capabilities never before available on 1/2".

Like multi-generation capability, playback through the view-finder, 4-channel audio, on-board time code generator/reader with selectable user bits and over 20 minutes of recording time on a compatible compact cassette. Even 90 minutes of operation with the MII Field Recorder, Field Editing and Studio VTR's. Plus performance of such high quality it can be used as an alternative to 1" C.

And with MII you have low maintenance and training costs. Tape consumption is dramatically reduced. Units are small and lightweight. Cassettes and parts inventory are interchangeable. And MII equipment is 100 percent compatible, so you can interface MII with your present system.

What's more, product is available now.

Find out how you can improve your production quality and cut your overall costs with the Panasonic MII Broadcast System.

For more information call (201) 348-7671.



Panasonic
Broadcast Systems

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ALL OUR SATELLITE NETWORKS COME WITH THIS USER-FRIENDLY SUPPORT SYSTEM.



NOTHING WORKS HARDER THAN SCIENTIFIC-ATLANTA EQUIPMENT. EXCEPT SCIENTIFIC-ATLANTA PEOPLE.

One of the most important parts of a satellite network is the support team. And after over 30 years of experience in satellite communications, we've assembled one of the best. Highly-skilled professionals ready to help you get the most from your system. Whether you need that help ten days after purchase or ten years.

TURNKEY SYSTEMS.

As a turnkey supplier, we don't just sell equipment, we design, manufacture, integrate, and install it. And before you purchase anything, you

can consult with our project engineers to make sure you get the equipment that best suits your needs. So nothing is left to chance.

SINGLE-SOURCE SUPPLIER.

From specific components to complete systems, we have a full line of both C and Ku-Band products that meet broadcast-quality specifications. And for total security, we offer addressability and signal encryption through our proprietary B-MAC transmission system. Everything's available from one reliable source.

DEPENDABLE PERFORMANCE.

At Scientific-Atlanta, we not only build a better network, we help you

get the most out of it once it's built. With responsive after-sale support whenever you need it. From comprehensive training programs to the fastest possible turnaround on maintenance, replacement parts and repairs. We're not satisfied with our satellite networks until you are. For more information, call (404) 449-2314 or write to Scientific-Atlanta, P.O. Box 105027, Dept. AR, Atlanta, GA 30348.

Scientific Atlanta

NURAD, INC.**3573**

Introducing these new products at the NAB: the 3-series of superheterodyne transmitters and receivers for STL/ICR applications (2-13 GHz); a 23 GHz transmitter/receiver system that features full diagnostics/alarms, up to four audio subcarriers, and meets ETA RS-250B; the 20 AR3 and 23 AR3 dual conversion, superheterodyne ENG central receivers with full frequency agility, low-noise preamplifier, and selectable IF filters; the RX2 series of frequency-agile portable ENG receivers that incorporate improved performance and features in a package 33 percent smaller than the original RX1. Also showing are the Superquad II and Silhouette ENG receive systems, the Silhouette ENG transmit systems, and Superpod helicopter system, which includes a Loran C interfaced Auto Transmit II control system.

See ad page 137

NYTONE ELECTRONICS 2836

Will show the VSS-1 video slide scanner with 80 or 160 slide capacity, 750-line resolution and optional 1000-line resolution, plus T9C-1 and two slide scanners.

O'CONNOR ENGINEERING LABORATORIES 3364

Will show the new Aeroped portable studio pedestal, the ENG Tripod with quick release and lightweight aircraft aluminum construction, the Tripod Lift Lock, and the Universal Top Casting tripod to accept all heads with Claw-Ball construction. Also showing the full line of fluid heads, tripods of wood and aluminum, the O'Connor dolly featuring the O'Connor wheels, the Mini side-loading camera platform, the Betacam bracket, and the Mitchell-to-Claw Ball and -Super Claw Ball adapters.

ODETICS, INC. 3586

Will show The Cart Machine TCS2000, which automates the playing of video cassettes containing spots or programs in Betacam and other small formats. Powerful software interfaces station traffic systems and both manual and automated master control for error-free airing of over 280 separate cassettes without reloading. See ad page 139

OLESEN 3350

Will feature its studio lighting packages complete with pipe grid, lighting, dimming distribution, curtains, cycloramas, and track, along with a complete line of expendables.

OMICRON 2622

Will show the Model 470 powered video/and the full line of video and audio DA's as well as the Model 501 10x1 PT preset/take video switcher.

OMNIMUSIC 2775

Will show the new Professional Broadcast

STANDARDIZE YOUR EFP SYSTEM WITH MII



If you use 1/2", 1" or any combination, switch to MII and get high performance and overall cost reductions.

The MII Broadcast System was designed to enhance your EFP operations. With product like the AU-500 Field Recorder that offers a combination of performance and capabilities never before available on 1/2".

Like over 90 minutes of recording time even in the field, multi-generation capability, field color playback, 4-channel audio, on-board time code generator/reader with selectable user bits and TBC connection. The Field Recorder also accepts compact cassettes from the MII Camera Recorder. Plus MII's performance is of such high quality it can be used as an alternative to 1" C.

And with MII you have low maintenance and training costs. Tape consumption is dramatically reduced. Units are small and lightweight. Cassettes and parts inventory are interchangeable. And MII equipment is 100 percent compatible, so you can interface MII with your present system.

What's more, product is available now.

Find out how you can improve your production quality and cut your overall costs with the Panasonic MII Broadcast System.

For more information call (201) 348-7671.



Panasonic
Broadcast Systems

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We have many competitors. But no competition.



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Sennheiser Electronic Corporation (N.Y.) 38 West 38th Street, New York, N.Y. 10018 (212) 944-9440 Manufacturing Plant: D-3002 Wedemark, West Germany
PROFESSIONAL MICROPHONES • HEADPHONES • WIRELESS MICROPHONES • INFRA-RED SYSTEMS

Circle 1E7 on Reader Service Card

SUBSTITUTE YOUR STUDIO VTR'S WITH MII

Package of digital CDs featuring 30- and 60-second instrumental beds for use in programming and production. These six releases contain more than 250 cuts, including logos, bumpers, fanfares, and specialty pieces. Also showing the Omnimusic Production Music Library, Cabletrax, Atmosphere music libraries.

OPTICAL DISC CORP. 2527

New products to be shown include an improved, high-quality videodisk, and a new frame I.D. box for telecine transfers to disk. Also showing the ODC 610A videodisk recorder and the recordable laser videodisk.

ORBAN ASSOCIATES, INC. 3444

New products making their debut at this year's NAB include: the XT2 six-band limiter accessory to the 8100A Optimod-FM for increasing loudness without audible side-effects, improvement of consistency from source to source, and other features; the Orban 9100B Optimod-AM audio processing system, updated to add the newly announced NRSC standard for pre-emphasis; the Model 787A programmable mic processor; and the Model 464A Co-Operator, an integrated level-control system. Also showing is the complete range of products for the Orban Stereo Television system, and the 8100A/1 Optimod-FM audio processor/stereo generator, and the Orban Pro Audio Blue Chips line.

ORION RESEARCH, INC. 2588

New products showing are the Model 3900 audio/video routing switcher with PathLock, soft patching, and assignable 'soft take' switching. Production models of the Orion AMU software-based audio mixing system, designed specifically for television, will be shown. The units feature ReMem, a recall memory system that can store, recall, and reset full console setups. Other features include capacity for full serial control and editor interface, sizes ranging from 8 to 32 stereo inputs, and a full range of broadcast features.

See ad page 82

OSRAM CORP. 2688

Will show its line of HMI lamps and lighting fixtures.

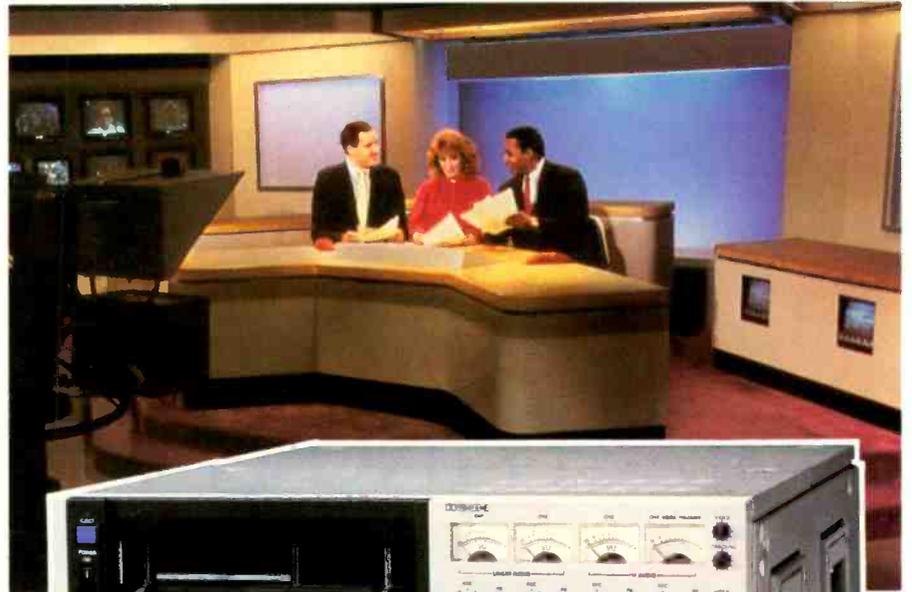
OTARI 3246

Will be showing the new DTR-900 1-inch 32 channel digital tape recorder in PD format, the CTM-10 NAB-style cart machine; MX-80 recorder available in 32-, 24- and expandable 24-track configurations; and the EC-201 handheld time code reader. Otari will also be showing its full line of mastering and multi-track recorders and cassette duplicators.

See ad page 77

PACIFIC RECORDERS & ENGINEERING 3151

Will introduce a new compact stereo



**If you use 1", switch to MII
and get high performance and
overall cost reductions.**

The MII Broadcast System was designed to enhance your studio production. With product like the MII AU-650 Studio VTR that offers a combination of performance and capabilities never before available on 1/2".

Like over 90 minutes of recording time, multi-generation capability, on-board TBC and time code generator/reader with selectable user bits, editing functions, variable speed playback including slow and still, Dolby[®]-C noise reduction, and 4-channel audio. The Studio VTR also accepts compact cassettes from the MII Camera Recorder. Plus MII's performance is of such high quality it can be used as an alternative to 1" C.

And with MII you have low maintenance and training costs. Tape consumption is dramatically reduced. Units are small and lightweight. Cassettes and parts inventory are interchangeable. And MII equipment is 100 percent compatible, so you can interface MII with your present system.

What's more, product is available now.

Find out how you can improve your production quality and cut your overall costs with the Panasonic MII Broadcast System.

For more information call
(201) 348-7671.



Panasonic
Broadcast Systems

*Dolby is a trademark of Dolby Laboratories, Inc.

Circle 198 on Reader Service Card

EXCITING NEW ANGLES.

Yours With Toshiba's New Microminiature Color Video Camera.

Our Microminiature Color Video Camera is smaller than small. It's tiny.

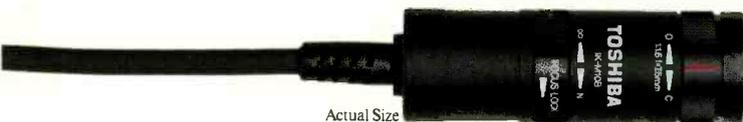
The 200,000-pixel CCD image sensor camera head fits in the palm of your hand and easily goes almost anywhere imaginable. A slim 4mm cable connects the head and paperback book-sized camera control unit for superb mobility.

Aside from exciting once-in-a-lifetime camera angles, the Toshiba Microminiature Color Video Camera

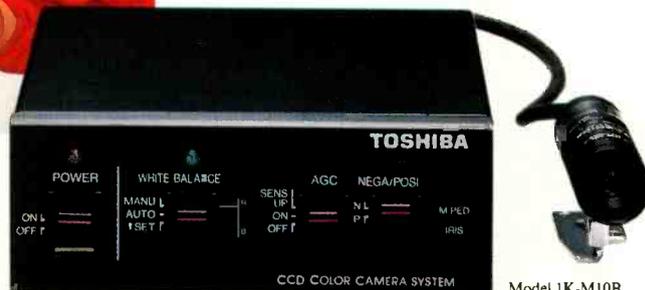


delivers sharp, natural image and color resolution. Focusing from 20mm to infinity and interchangeable C-mount lenses further enhance versatility.

For live telecast, portable VCR and monitoring system use, the Toshiba Microminiature Color Camera can't be beat.



Actual Size



Model 1K-M10B

TOSHIBA

TOSHIBA CORPORATION TOKYO JAPAN

ELECTRONIC SYSTEMS DEPARTMENT

1-1, SHIBAURA 1-CHOME, MINATO-KU, TOKYO, 105, JAPAN
TELEX: J22587 TOSHIBA CABLE: TOSHIBA TOKYO PHONE: 457-3246-8

mixer, designed for news, on-air production, and remote production applications. Rack-mountable or portable. The new Micromax stereo cart recorder will also be featured, available with Maxtrax or NAB heads. Also showing the full line of on-air, production, and Newsmixer consoles, and the Tomcat and Micromax cart machine lines. Samples of studio cabinetry and systems work will be displayed, with all products fully operational to allow for studio-type demonstrations.

PACO ELECTRONICS USA, INC. 2718

Will show the new KD-11 nicad battery pack fast charger, specially designed for DP-11 packs, a direct replacement for Sony NP-1. Also showing the PACO four-channel battery dememorizer/fast charger, the four-channel sequential fast charger, and other new products, as well as other PACO nicad battery packs.

PAG AMERICA 2708

Will show the new family of batteries, camera brackets, and chargers incorporating the new improved low-cost battery-to-camera mounting system called PAG-lok. Other PAG products to be shown include the two-pound, microprocessor-controlled Micromaster fast charger and balancer with automatic voltage selection for use with any ENG nicad battery.

PALTEX 3260

Will be introducing EDDi, a new non-linear, laserdisk/VHS-based editor that utilizes a film-style approach to off-line editing. The Esprit-Plus six-machine-capable edit controller and the upgradable XL three-machine film management system will also be exhibited.

PANASONIC BROADCAST SYSTEMS 3116

Among the new equipment to be shown at the NAB are the M-II AU-550 field editing VCR and an M-II studio player and an M-II office viewer. Also new is an enhanced control panel for the M-II AU-650 studio VCR, and the AK-400 ENG/EFP CCD camera with an electronic shutter. Other products to be shown are the complete line of M-II format VCRs, including the AU-650 studio recorder, AU-500 field recorder, and the AU-400 camera/recorder.

See ad page 147, 149, 151

PANASONIC INDUSTRIAL CO. 3216

Will present its lines of 3/4-inch recorders, 3 and 1 tube color cameras and chip cameras, display equipment including monitors, and integrated VCR/monitor presentation units.

PATCH BAY DESIGNATION COMPANY 2409

Will show self-adhesive sticky-back patch

bay designation labels, PatchPrint custom labels for all brands of audio and video patch bays, control panels, and other areas, and film inserts for all brands of rear-illuminated button switches.

PEERLESS SALES 2412

PENNY & GILES 2774

Slide, digital, quadrant, rotary, and motorized faders; joystick and T-bar video effects controllers.

PEP 3387

Featured items will include the Model AS64/800 alternate VHS edit source with Sony BVU-800 interface; direct editing of VHS to 3/4-inch with Sony edit controllers for the On-Cam VHS-C VCR system; the Model OC1 ON-Cam VCR and playback unit; and the line of batteries, chargers, reconditioners, and analyzers.

PERROTT ENGINEERING LABS 2733

New products are to be revealed at the NAB convention. Will show nicad, Silver Zinc, and Lead Acid power systems in clip-on or belt styles. Single or multiple fast, medium fast, or overnight Minichargers, lighting systems, Cam/Light Maxi-Power belt with built-in fast charger, accessories, and information on special packs made to order.

See ad page 176

PESA AMERICA, INC. 3417

New products will include: the ASCV-4652-C SWAT Plus synch watcher analyzer and timer for RS-170A video; SIM 4000 intercom system with matrix core and smart micro terminals; and the CG-4722 character generator. Also showing the ASC-4652-B synch watcher, analyzer, and timer for RS-170A video, the BM-4309 nine-inch color monitor, BM 4314 14-inch color monitor, information on the TR-4700 and 4800 series translators, and information on the Pesa America line of outside broadcast vans.

PHILIPS LIGHTING 3238

Will introduce the Sure Spot proximity reflector in 750, 1000, and 2000W models; this is a direct replacement for the CYX, EGT, and EGR. PARS, incandescent, and halogen lamps will also be presented from the regular line, as well as MSIs and tin halides.

**PHILIPS TELEVISION SYSTEMS
See BTS BROADCAST
TELEVISION SYSTEMS 3140**

PHILIPS TEST & MEASURING INSTRUMENTS 3238

New products include: the PM5661 waveform/vector monitor; PM5662 waveform/vector monitor with SCH phase; PM5665 waveform monitor with line counter; PM5667 vectorscope;

PM5668 vectorscope with SCH phase; and the PM5680 TV IF modulator.

Also on display will be the company's lines of sync and color pattern generators, test signal generators, TV modulators and exciters, the PM5539 color analyzer, and the PM5560 demodulator.

PINNACLE SYSTEMS, INC. 122

For its NAB debut, Pinnacle will be showing its 2000 Series of video workstations, highlighted by the 2010 system with built-in digital effects and the 2020 with built-in digital effects and still store. There will also be component versions of both systems.

PINZONE 2411 & Outside

Will introduce the CPG anti-skywave antenna, a low-profile antenna for AM broadcast applications, providing 6-10 dB gain over a standard quarterwave antenna. The VIMCAS vertical interval multi-channel audio encoding system will be available, for VTR, microwave, and satellite applications, as well as the usual turn-key uplinks and downlinks for C- and Ku-band.

PIONEER ELECTRONICS 3546

Will highlight family of LD-V6000 laser disc players, consisting of LD-V6000, 6010, 6200; plus its eight-inch videodisc player, LD-V3000.

PKE INTERNATIONAL 144

Will be showing the DP-5 intelligent remote-site control and interrogation system, which includes such features as 24-hour monitoring and control, auto after-hours technician call-up, and auto log with visual and hard copy. Also showing: the CSC-1 fully customizable stereo modular radio broadcast console; the MC-200 all-purpose stereo radio console available in 8-, 12-, and 16-channel versions; the OBI lightweight and compact two-channel mobile amplifier with shoulder strap-mounted battery. And information will be provided on the full line of on-air mixers, Euro module systems, accessories, and precision fabrication.

POLAROID CORP. 2837

Will show the FreezeFrame Video Image Recorder, which delivers high-quality instant color prints and 35 mm slides from video images. The FreezeFrame recorder can also be used with computers that operate at 15.75 KHz in the RGB analog or TTL mode. Also showing PolaBlue and PolaLith films, the PowerProcessor, and an illuminated slide cutter-mounter.

PORTA-PATTERN, INC. 3538

Will introduce the RCA P-200 and P-300 test patterns in its proprietary Test Chart System size and as 8 x 10-inch transparencies for use in the Spherical Illuminator. Other new test media will also debut for film-to-video interface systems, including

both large and small format patterns for field lens positions. Established products on show will include a selection of test charts and test chart systems, as well as the Illuminator and specialized optical test media.

POTOMAC INSTRUMENTS 3329

Showing its line of products including antenna meters, audio test sets, field strength meters, remote control equipment, and audio equipment.

See ad page 49

PROFESSIONAL SYSTEMS NETWORK, INC. 2486

A marketing and public relations firm for a nationwide network of video systems dealers. Services include a monthly newsletter, training seminars, market surveys, and a resource library.

PRO BATTERY CO., INC. 2761

Exhibiting its line of Pro Batt batteries available in 14.4 V, 13.2 V, and 12 V with customized laser-engraved front plates. Will also display the PBN1 and PD90 (professional versions of Sony's NP1 and 90 batteries, respectively) and its line of assorted primary, nonrechargeable batteries. Is now also an authorized dealer for JVC and Cine 60 products.

PYE TVT 3238

Will show the 60 kW UHF TV transmitter, and also 300 watt, 500 watt, and 1 kW radio transmitters. Will introduce a prototype 5 kW solid state FM radio transmitter, and two other items to be shown for the first time in the USA: the dual-channel sound-in-synch coder and decoder.

QEI CORP. 3336

Will be showing the 695T30KW 30-kilowatt transmitter, 691 modulation monitor test set, 675T500 500-watt emergency transmitter system, and the 695 Exciter.

QSI SYSTEMS, INC. 2722

Will introduce the CB-2440 24-character source identifier with SMPTE colorbar pattern, 40 address memory (each up to 24 characters), blackburst outputs, and stereo audio test tone.

Also new will be the 2400 24-character satellite video identifier for satellite uplink identification; the 5500 video processing amplifier with manual or AGC of video and chroma, manual setup, and burst phase and level controls; and the AF-1000C autophasing blackburst generator with phase sync and chroma to three cameras. Established products on display include two split-field colorbar generators, a battery-operated portable camera identifier, battery-operated colorbar generator, a video distribution amplifier, and a four-input program and

preview switch.

QUALITY VIDEO SUPPLY 2461

Showing its Telecomp line of computer video interface products, the All-In-One video presentation system, and a full line of video and audio accessories.

Q-TV 3469

Will debut 12-inch and 15-inch on-camera videoprompters. Also on display will be the company's two computerprompter systems, paper transport prompting systems, a nine-inch on-camera video-prompter, and the Mini Q on-location prompter system.

QUANTA CORP 3128

Three new character generators will be shown--the Microgen Plus, the QCG-34, and the QCG-38--along with the existing character generator line. Two new paint systems will also debut, the Quantapaint 8--with new software--and the full-color Quantapaint 32. The Dimension 32 3D modeling and animation system will also be shown. Calaway Engineering, a division of quanta Corporation, will show CED, a basic editing system that is compatible with either the IBM-PC or Compaq computers with the addition of basic edit software. A variety of options for CED will be presented, along with new software features for all editing systems, and other new product improvements.

QUANTEL 3171

Will be showing its Encore and Mirage (with Starlight) special effects systems working in tandem, as well as the Hary digital production center, Paintbox graphics systems, the Cypher character effects machine, the Satin standards converter, and the Digital Library System with optical disk.

See ad page 35

QUANTUM AUDIO LABS 3446

Will feature its 22 Series Broadcast Production on-air console.

QUICKSET INT'L., INC. 3380

Will be showing its line of tripods, pedestals, dollies, fluid heads, cam heads and pan/tilt mechanisms.

RADIATION SYSTEMS, INC. 2929

Will show the new Kenwood/Laux TVRO systems, with 2.0, 2.8, or 2.8 perforated antenna. Also showing the SatCom Technologies 2.4 meter SNG antenna, 5-meter C- or Ku-band transmit and receive earth station antenna (ESA), and 5.5 meter remote steerable ESA.

RADIO RESOURCES 2833

Will show various lines of audio equipment.

RADIO SYSTEMS, INC. 2680

Will be unveiling two new lines of studio furniture demonstrated in two fully operating studios. Includes console tables, reel-to-reel cabinetry, turntable pedestals, storage units, CD and cart racks. Custom finishes in oak walnut formica and other popular finishes. Other featured products include the DCX line of low-cost studio accessories, PA-1 stereo phono preamp, the DA-8 and DA-16 distribution amps, TM-2 studio timer, CC-2 studio clock, ESA-10 10-channel broadcast console, Key/Cart cart machines, and a full line of LED metering systems. And full information on installation and turnkey services.

RAKS CORP. 216

In its first appearance at the NAB, will show its line of professional audio and videotape. These include VHS, Beta, and 8mm tapes and audio tapes in all lengths, with especial attention to broadcasters using Betacam tape and duplicators.

RAM BROADCAST 3028

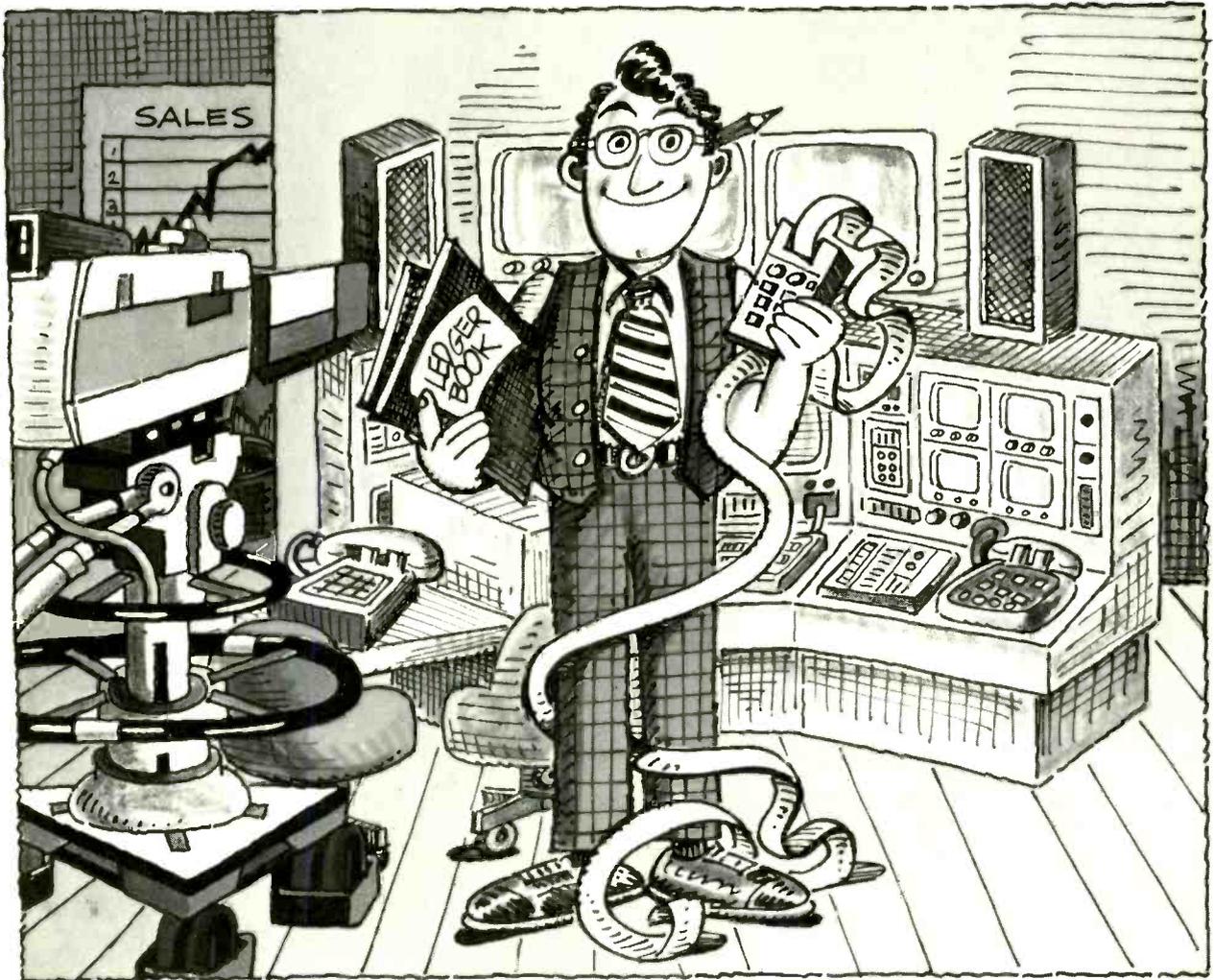
Will show the new Phascope Model PS-2000 to bridge off the output of an audio console to monitor phase, peaks, and level differentials between left and right outputs. Also the ADS-10 dual 10x1 input select switcher, and the SS8816 audio console.

RAMSA BY PANASONIC 3216

The new WR-8428 post-production/recording audio console will be demonstrated, its features including 28 mono or stereo input modules, 24-track monitoring capability, stereo and mono outputs, four group and matrix outputs, and optional surround sound matrix module. Other products to be shown include: the WR-8616 post-production/recording audio console; WR-500 eight-input remote mixer; WR-5208 and WR-133 eight input portable or rack-mounted mixer; WR-M10 rack-mounted mixer with 4 mic and 6 line inputs; WP-9055 power amp; WS-A10 compact monitor speaker; WS-A70 near-field monitor speaker; and WS-A240 subwoofer.

RANK CINTEL, INC. 3066

Introducing a new digital add on for the Enhanced MKIIIC flying spot telecine, a preprogramming system for the ADS 1 CCD broadcast telecine, and a dual picture display and transmission display capability for the Slide File still store. The ADS 1 CCD broadcast telecine will also be exhibited, along with the Slide File/Art File still store presentation system, 500,000-slide capacity library system, a 4:2:2 film-to-digital tape demonstration, Enhanced MKIIIC flying spot telecine, and the Amigo II telecine automation system with Kameleon software.



Our Video Experience Will Do Wonders For Your Bottom Line!

Figure it this way: nobody has quite the experience we have in designing and fabricating complete turn-key video systems, whether for the networks, broadcasting stations, cable operators or production and post-production studios. As a result, we know how to cut through the red tape, how to avoid mistakes, how to stay on budget and how to deliver when we say we will. That's where the bottom line comes in.

And this track record isn't just for the big jobs. This goes for the small, corporate or in-house video systems that we've

designed and fabricated for companies like McGraw-Hill, Doyle Dane Bernbach, IBM, Wells Rich and Greene, Metropolitan Life and Leo Burnett, among others.

So, if your company or institution or agency needs a video system—from a one-camera studio to the last word in post-production—talk to us.

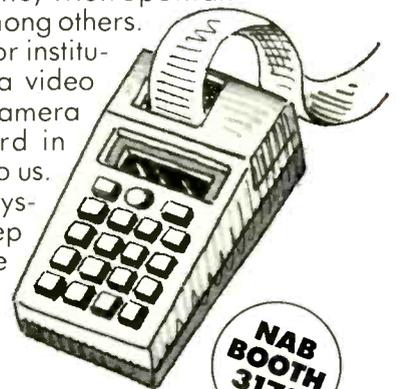
We'll give you a great system and we'll keep your bottom line looking good, too!



A.F. ASSOCIATES INC.

ADVANCED SYSTEMS AND PRODUCTS FOR THE VIDEO INDUSTRY
 100 STONEHURST COURT NORTHVALE NJ 07647 (201) 767-1000
 IN THE WEST: 10650 SCRIPPS RANCH BLVD. SUITE 200 SAN DIEGO, CA (619) 530-2970

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**NAB
 BOOTH
 3170**

RCA AMERICAN COMMUNICATIONS 3298

Information will be provided on RCA American Communications program syndication service via Satcom K-2, international/occasional television service at C- and Ku-band, and the SCPC and Digital Audio Radio Program Distribution Service.

RCA NEW PRODUCTS DIV. 3292

Will introduce a new line of diode gun Vistacons. From the regular line, it will show its complete lines of camera tubes for broadcast and professional cameras, and of VHF power tetrode tubes for TV broadcasting.

R-COLUMBIA PRODUCTS 2671

Will introduce the CC-777 director headphones with two built-in mics that allow directors to control two intercom systems simultaneously. Also making their debut will be the ultralight SB-777 (double-ear) and SB-700/2 (single-ear) sports-caster headphones with on-air-quality, noise-cancelling electret condenser mic; the 52/777 double-ear (52/777, single-ear) one-ounce amplified cameraman headphones; the 52/111 double-ear (52/100, single-ear) cameraman's headphone for new cameras equipped with four-circuit mini plugs; switchable five-channel wireless headphones; and the new TR-50/B wireless-to-wired base station interface.

See ad page 78

REACH ELECTRONICS 2437

New products to be featured at the NAB convention are: the SCA 2VR81 TOP tone only pagers; LIAISON 21DYE1 Dial Access Paging terminal; and the LPage 2TE7 manual paging terminal. Other products include the SCA 2VR82 VIP II tone and voice pagers, conventional 2VR152 and 2VR32 high band and low band tone and voice pagers, manual paging terminal 2TE6, and VEETRONIX keyboard and panel-mount switches.

REEL TIME CLOCKS 2794**REES ASSOCIATES, INC. 2500**

Will show photographs documenting various examples of its architectural, planning, and consulting services for the broadcast environment.

REGISTER DATA SYSTEMS 2505

Will show its traffic and accounting computer system for radio and television. Also shown, a multiuser system, based on the IBM PC XT/AT, with 16-workstation capacity. The multiuser system based on LF Technologies hardware will be shown along with Music Master software and the Data Scan ratings analysis system.

RESEARCH TECHNOLOGY INT'L./RTI 3386

Will be introducing the TV-2000, an inspection and editing system for 16mm film, now with the PHASAR totally electronic detection system. Also showing the VT Series of TapeChek videotape evaluator/cleaners for VHS, U-matic, Beta, and one-inch formats, including the 320 VHS inspector/cleaner. The VT-6120 unit for one-inch decks includes a color CRT display and built-in hard-copy printer. The full line of inspection, cleaning, and editing equipment will also be on display.

RF SCIENTIFIC 2729

Will discuss its C-band trucks and Ku-band flyaway package, which it both rents and builds for sale, plus its fixed sites for satellite networks.

RF TECHNOLOGY 2809

New products that will be shown are: the UPL series of low-volume, low-cost transmitters for short-haul ENG, wireless camera, RaceCam and security applications. The 1 watt and 250 mw RF output versions will be shown.

Also featured will be the new RPL-200 series of medium-power ENG transmitters featuring full frequency agility, two audio line/mic switching, and operation from 115/220 volts AC and DC. A range of RF power amplifiers from 5 to 30 watts, for use with the above items, will also be shown. Other products showing include: the RFL series of fixed microwave links for STL/TSL and ICR; the PowerPac range of high-power ENG transmitters; the RF-700/1300 frequency agile portables for ENG/sports broadcast use; the Power Line range of RF amplifiers for 2, 2.5, 7, and 13 GHz fixed or portable applications; and the Sky-Rod antenna system for ENG and central receive applications.

RICHARDSON ELECTRONICS, LTD. 3343

Will show the Eimac Y 863 VHF power tetrode intended for use as a retrofit for the 8F76R in VHF TV amplifier service. Also will introduce the new Eimac Y143 planar tetrode as a long-life replacement for the TH328 in the TV translator market. Eimac power tubes for FM, AM, and TV applications will be shown. RCA power tubes for TV transmitters, RF transistors, TV linear devices, and camera tubes will also be on display.

RIVIERA BROADCAST LEASING 2793

Will present several new finance programs for the leasing or purchasing of production and post-production equipment.

THE ROBOT FACTORY 2569

Will provide promotional entertainment with animated characters and remote-controlled robots.

ROCKWELL INT'L. 3484

Will exhibit a video microwave transmission system.

ROH CORPORATION 2432

Will be introducing the Model 191X-16 as an accessory to new or existing 191B-08TS or 191B-16T audio line monitor/bridging switchers. The 191X-16 is one-rack-unit-high and provides for an additional 16 switched inputs with tally for VU or peak metering and monitoring. Also on display will be: professional, multichannel intercom systems that use support modules for integration of several functions into one, easy-to-use control panel; a full line of Party Line and IFB products; modular audio systems with a wide selection of distribution, buffer, and control modules; and audio line monitors in mono or stereo with multiple bridging inputs.

ROHDE & SCHWARZ-POLARAD, INC. 3491

New products to be featured are the EMF family of synthesizer TV demodulators, the VMS-100 video/RF automatic quality-monitoring system, and the LDS-LFM2 system, which includes the LDS sideband analyzer, LFM2 group delay sweeper, and ODF digital TV oscilloscope. Other products to be shown are the UPA audio analyzer system and UPSF2 video noise meter.

ROHN 2449

Will exhibit diagrams and photos of its communications support structures and equipment shelters for cellular and broadcast applications.

ROSCO LABS 3443

Will feature its line of lighting diffusion material, gels and filters, scenery and props.

ROSCOR CORP. 3404

Will show the new Star Fleet 21 satellite newsgathering vehicle, built on a Ford E350 chassis and weighing under 10,000 pounds fully equipped. Also showing are the Sports Editor system designed for professional teams who need to break down tapes according to the type of material recorded on them.

See ad page 165

ROSS VIDEO LTD. 2616

Will introduce the RVS 210A 10-input video production switcher. The 210A is an upgraded version of last year's RVS 210 composite video switcher, with such features as a function button that allows users to tailor the unit's operation, a pulse regenerator option, built-in key/source memory (with optional 12-event memory), interface compatibility with all major editors, and the ability to wipe in to a downstream key.

RPG DIFFUSOR SYSTEMS 2633

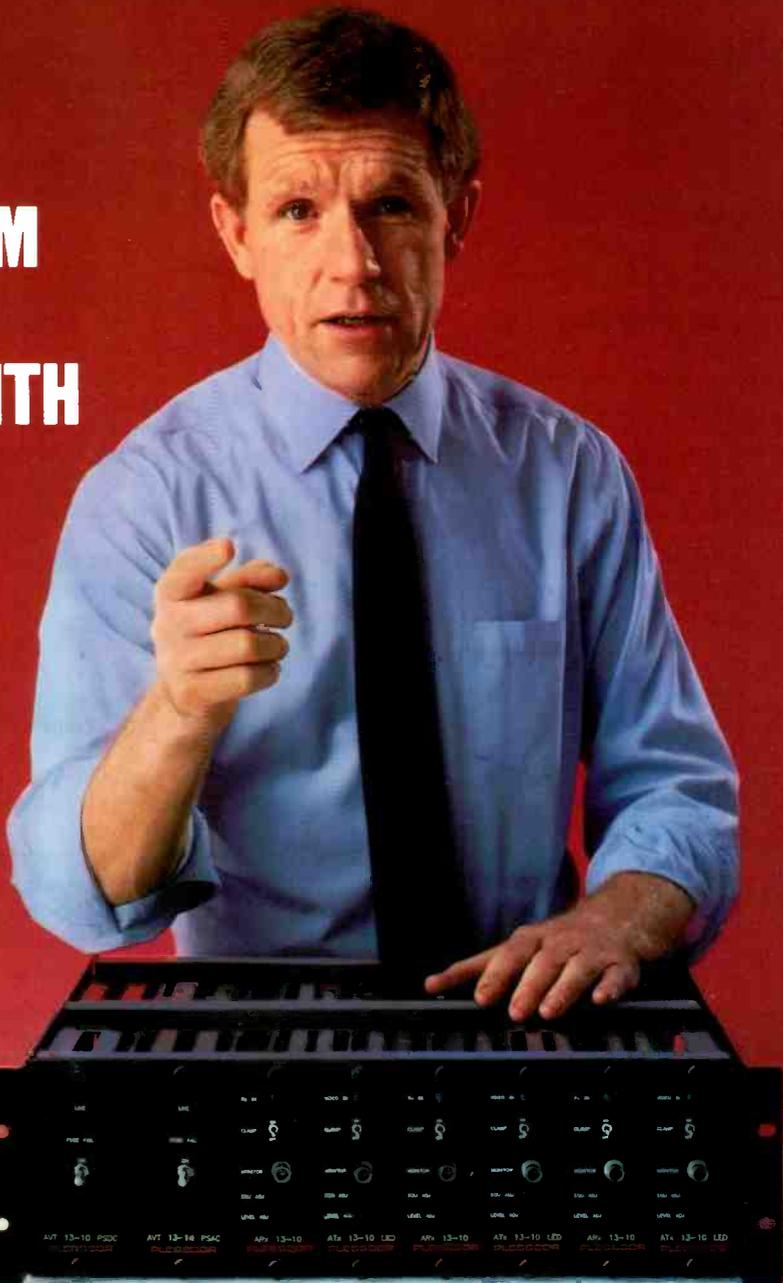
Exhibiting a complete acoustical treatment system for broadcast recording stu-

You said,

I NEED A VIDEO TRANSMISSION SYSTEM THAT MEETS RS-250B SHORT HAUL SPECS, WITH BETTER LINEARITY, SUPERIOR PICTURE AND LARGER LINK BUDGET..."

and we said,

"YOU'RE ON."



There are some things that just don't belong on live TV. Static in the picture from EMI or RFI contamination. Fuzzy electronic glitches. Or maybe you're having trouble teleporting the signal to other locations and you can't tell why.

If you want to eliminate problems like these, we have a suggestion. Get rid of that outdated coaxial or microwave equipment. And then get PlesCor's fiber optic analog video transmission system.

It's got everything you need for on-location broadcasts, with performance and features

that come across loud and clear. Features like a user friendly front panel that give you total control over cable equalization and system gain adjustments. Front panel clamps for easy formatted or unformatted selection. Add to that 75 ohm and 124 ohm simultaneous outputs and it's easy to see why this is the video transmission system that really puts out.

Additional performance is available when you specify our optional upgrade cards including 4 simultaneous outputs, 2 high fidelity audio channels, and redundant AC or DC

power supply, just to name a few. Available with both multimode and single mode light emitting diode and/or laser sources, repeaterless link distances up to 60 kilometers may be supported in current cable plants.

PlesCor's AVT-13-10. Because in a business where your image is everything to us, we make the choice crystal clear. And you'll see the difference as soon as you hear the words, "You're On!"

For more information on this and our other analog video system products contact us at 818/700-0841.

MADE IN THE USA.

PCO

PCO, Inc. Formerly PlesCor Optronics Inc., 20200 Sunburst Street, Chatsworth, CA 91311-6289
Tel: (818) 700-1233 Tlx: 650 239 8651 Fax: (818) 700-9047

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dios and post production facilities. The three-part system consists of the Diffusor, a broadband-width, wide-angle sound diffuser; the Abffusor, a broadband-width sound absorber; and the Triffusor, a triangular, rotatable, variable-acoustic module with a sound diffuser on one side, an absorber on another side and a reflective panel on the third side.

RTS SYSTEMS, INC. 3566

Will show the new Model MSA325 modular loudspeaker, which fits into a standard 19-inch rack, and the new Model 927 reference tone generator designed for use in making master and/or duplicate audio or video tapes. Other products to be shown include the series 800 intercom system, the series 4000 IFB system, series 400 modular amplifiers, the series 2500 amplifier system, the TW intercom system, and the series 6000 computer assisted matrix intercom.

SANKEN MICROPHONE 206

Will show full line of microphones and accessories.

SACHTLER 3419

Will introduce the Combi Pedestal units offering more capacity in the same size configuration as the Video 14, 20, and 25 systems. Also new will be the OB system, a tripod designed for camera/lens com-

binations up to 200 pounds. Other new products include the Hot Pod dolly ENG tripod now with a dolly. Standard products include the Video Series fluid heads with a wide range of capacity for all size camera/lens combinations.

See ad page 143

SAMSON 2784

Introducing the Broadcast STD Series of true diversity, fully synthesized wireless microphones featuring dbx as an integral companding system. Also new will be handheld and lavalier microphones and new instrument systems. From the existing line of products, the Concert TD Series of VHF wireless and the Stage Series, single antenna VHF wireless systems.

SCHAFFER WORLD COMMUNICATIONS 3353

Will introduce a random access CD player with 60 disk capacity for fully automated stations or live assists. Also new will be hard disk-based systems for stereo digitally reproduced commercials and music, with random access, and also a user-friendly phone system that can use names instead of numbers for dialing. The regular line will feature 2000 and 8000 series consoles with 5 to 16 channels, the full line of Schaffer 7000 program automation equipment including the Ready-Spot, plus the latest in random access cartridge playback

equipment with up to 90 carts per source.

SCHMID TELECOM 2462

Showing new set of program distribution amplifiers.

SCHNEIDER 3221

New television lenses include the 17 x 8.5 mm studio/EFP zoom lens, the 35 x 11 mm zoom, and the 14X apochromatic ENG/EFP unit. Also on hand will be the 14.5X studio zoom and lens rental and repair services.

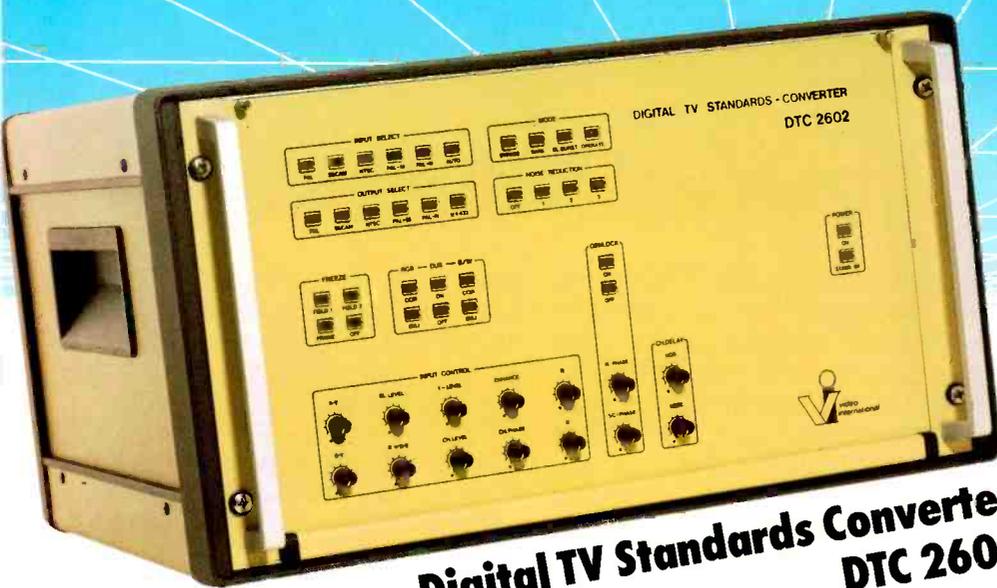
See ad page 145

SCHWEM TECHNOLOGY 2553

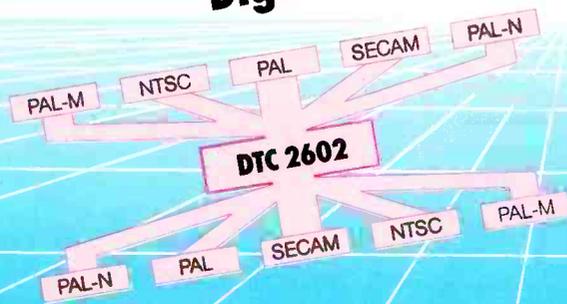
Exhibiting the Gyrozoom image stabilizing lens for most ENG/EFP cameras, including the wide-angle attachment to reduce focal length by 5X, and a remote control system controlling focus, stabilization, iris, and zoom.

SCIENTIFIC-ATLANTA 3272

New video satellite receivers will be introduced, including the Model 7510. Also new will be the low-cost motorization package for the company's 4.5-meter antenna and the PC-based earth station controller. A Ku-band, L-band loop test translator will be introduced as well. The full line of microwave products, digital audio terminals, and encryption products will be displayed.



Digital TV Standards Converter DTC 2602



**See us at NAB
Booth No. 208**

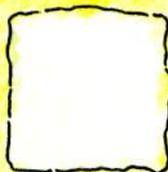
Highest Quality and Reliability
Complete new product line!
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Ulmenweg 11 · D-3013 Barsinghausen · W.-Germany
Telefon: (0 51 05) 8 11 44
Telex: 9 23 397 · Telefax: (0 51 05) 8 36 52

What size does a newsroom
have to be before a
Basys newsroom computer
will fit in perfectly?

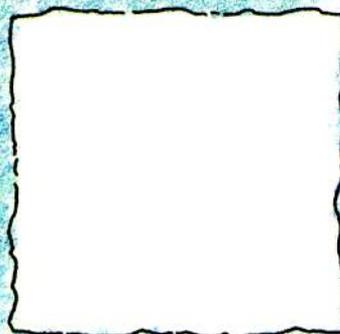
small



medium



large



huge

any of the above

Basys systems are used in some of the largest newsrooms in the world.

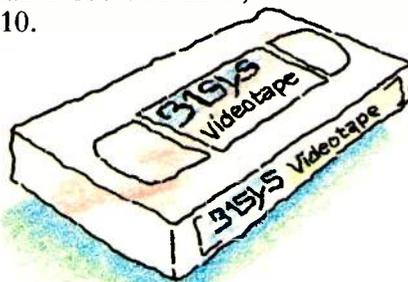
Now Basys has a new system designed specifically for smaller radio and television stations—a system which can provide *your* station with the same advanced features currently used by ABC, CNN, NBC and the BBC.

All of our customers, regardless of size, get the same easy-to-use, flexible, expandable and *proven* software—plus our experience, service and support.

We'd like to show you what that means for *your* newsroom.

Just call for our free demonstration video. You'll see for yourself what makes Basys the world's leading newsroom computer system.

Call 1-800-847-0633, Dept. B10.
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Dept. B10.



Basys

Basys, Inc., 900 Stierlin Road, Mountain View, CA 94043

This free video offer limited to qualified newsrooms.

Circle 210 on Reader Service Card

See us at NAB Booth # 2913

Digital Video Systems will show its remote control for the DPS-165 frame synchronizer and its new comb filter, as well as the DPS-175A TBC/framestore with comb filter. From the existing product line, the full line of test signal generators and time base correctors will be on hand.

See ad page 148

SELCO/SIFAM 2450

Showing fuse holder, knobs, audio level indicators including VU and PPM meters.

SENNHEISER 2664

Will be introducing the RS-2012 six pack wireless case, which holds up to six of the company's ultra-miniature body pack receivers. Also new will be the MKE-42PU gooseneck cardioid mic with built-in 48V phantom adapter for console and podium use. Also showing prototype for new recording-grade monitor, closed-ear headphone and also will have demonstrations of the final version of the M-8 portable console.

See ad page 150

SESCOM 3445

Introducing rack mountable audio generator, PG-1 TV pattern generator and SAT-2 audio leveler for satellites. Also new will be the MLD-6 dual mic/line driver and series of transformer pads. From the standard product line will be audio transformers and modules.

SG COMMUNICATIONS 2535

Will offer its services in the erection, maintenance, and repair of broadcast towers and antennas.

SHARP ELECTRONICS 3305

Showing the XC-B20P plumbicon camera with interformat compatibility and automatic functions; the XC-B10TX triax control system for use with the company's color camera systems. Also showing its full line of professional and broadcast cameras, monitors, and VCRs including three models of color monitors, four head industrial VCRs, and the XA-120 professional model VCR with stereo sound and full audio dub capability.

SHIMA SEIKI USA, INC. 2573

Will make its NAB debut with the SDS-480 fully integrated computer graphic paint system with two- and three-dimensional graphics software packages. The SDS-480 has inputs for a video camera, color image flatbed scanner and digitizer pad and pan, with outputs for an NTSC signal, film recorder, and color thermal printer. Material may be stored on hard disk or WORM optical disc.

SHIVELY LABS 2442

Will introduce innovations in half-wave spaced antenna technology for dealing with excessive RF radiation. Also new will be vertically polarized FM antennas and

special ratio FM antennas designed to provide custom horizontal/vertical ratios for situations where license restrictions apply. The full line of FM and TV broadcast antennas, plus related items will be on display. In addition, there will be rigid transmission line, branched and balanced FM combiners, TV combiners, RF patch panels, isocouplers, harmonic filters, and pressurization equipment.

See ad page 171

SHOOK ELECTRONICS 3222

Showing its Model 24-31 mobile television production system for six cameras and a full complement of audio and video equipment. New designs will be on hand for custom mobile systems as well as new financing plans.

SHURE BROTHERS 3320

Introducing the FP51 gated compressor mixer and variations on the wireless microphone systems. Also new will be the SM 89 shotgun condenser mic and broadcast phono cartridges. The complete line of professional mics and circuitry products will be shown, including the field production line.

See ad page 13, 124

SINGER PRODUCTS CO., INC. 2584

Will show its CCA-FM 20 kW transmitter; support equipment, studio equipment, single sideband communications equipment, and two-way radio equipment.

SIGMA ELECTRONICS 2905

Announcing new 400 series of color sync generators with additional test signal output, improved genlocking capabilities, and additional black burst output. Also color bar and black burst generator devices for modular systems and complete distribution line, audio, video, pulse and subcarrier DAs.

SKOTEL CORP. 2738

Will introduce model 132 VITC/LTC reader with video monitor display, reshaped LTC output, automatic selection of VITC or LTC. In addition, will have the TCR-111 and -112 models of LTC time code readers and time code generator models including output to character generators.

SOLID STATE LOGIC 3560

Will launch a new high-performance studio computer for its consoles, allowing entire productions using up to two standard floppy discs to be loaded into high-speed dynamic RAM. Also permits storage of up to 80 floppy discs-worth of information on compact 20 megabyte cartridges.

Demonstrating the complete line of audio consoles, studio computer systems and machine control units for multitrack production and recording, audio/video post production. This includes the SL 5000 M series, completely modular, featuring totally electronic switching specifically designed for

broadcast. The SL 6000 E series stereo video system will be available in versions accepting up to 64 input/output modules with all versions offering three stereo mix buses to provide for stereo music, dialogue and effects feeds or similar mix-minuses. The SL 4000 E stereo master studio system for multitrack recording will also be demonstrated with 24 to 64 input/output channels, each with a built-in compressor/limiter expander gate, and high and low pass filters. There will also be optional expansions on hand for all three models of console.

See ad page 166-167

SOLUTEC 2530

Introducing SOL 2221 stereo VU/PPM meters and phase indicators, the SOL ADA stereo audio DA, the SOL VDA video DA and the SOL 6800 commercial spots network automation. The full line of automated broadcasting systems for commercial inserts will be demonstrated as will the SOL/AD ID generator.

SONO-MAG CORP. 3480

Will feature the line of automation programmers and systems for live assist and full automated operation.

SONY COMMUNICATIONS PRODUCTS 3100

Broadcast: For the first time will show Betacam SP production models, including the BVW-35 field recorder/reproducer offering color playback and four audio channels; the BVW-75 studio recorder/player with dynamic tracking and 90-minute record time; and the BVV-5 Betacam SP recording unit that provides viewfinder playback.

New camcorder models incorporating the BVV-5 are the BVW-505 CCD and the BVW-503 Saticon units. In addition, the complete line of Betacam products will be shown including portable field players, studio editing decks and the BVX-10 color corrector. A new line of low-cost, one-inch VTRs will be introduced using VLSI technology, they are CPU driven and offer two types of built-in time base correctors. Other VTR technology will be on hand, namely the DVR-1000 component digital unit that will be demonstrated along with Quantel's Harry and Encore graphic effects generators. Also interfacing with the DVR-1000 will be the Rank Artfile and Grass Valley Kaleidoscope routed through an experimental GVG digital switcher.

In cameras, studio/field production units with 1/2-inch mixed field Plumbicon or Saticon tubes will be exhibited in both triax and multicore configurations along with the 360 camera control unit, the Super Motion systems including digital processing and slow motion playback at 1/2 normal speed. Betacart multicassette system demonstration for new applications will be highlighted, as will the prototype Library Management System.

The new BVE-9000 expandable editing

system will be shown as will 20- and 25-inch monitors as well as other color units. Also on display will be the High Definition Video System.

Professional Video: The full line of 1/4-inch U-matic and U-matic SP recorders will be shown as will CCD and tube cameras and multiscan video projectors and the extensive line of "cubic" monitors. The 8 mm complement of video products are slated for demonstration as well.

Professional Audio: The complete line of digital audio products including the PCM-3324 multitrack, the PCM-1630 processor and the new PCM-3401 twin speed DASH two track digital recorder are scheduled for exhibition. The full range of mixing consoles including the MXP-29 portable unit with video editor interface will be demonstrated as will all the studio, lavalier, and wireless microphones. Professional CD units, portable cassette recorders, and two track recorders will be displayed.

Magnetic Products: New products include digital videocassette introductions, as well as tape for Betacam SP (30 and 90 minute sizes), U-matic SP and D-1 (10, 30, 60 minute sizes). Also on display will be 8 mm, U-matic, Betacam, and one-inch Type C, and high definition videotape.

See ad page 2-3, 36

SOUNDCRAFT

2770

Announcing the SAC 200 broadcast console and the TS 12 multitrack production console. Also will have the line of consoles, including the SAC 2000, the Series 200, and the TS 24, in addition to the Saturn 24 track tape machine with remote.



Ross Video is introducing its new Model 210A compact production switcher at NABS. The 210A has a full transition preview system, three separate color generators, and three auto transition units.

SOUND IDEAS SOUND EFFECTS LIBRARY

2561

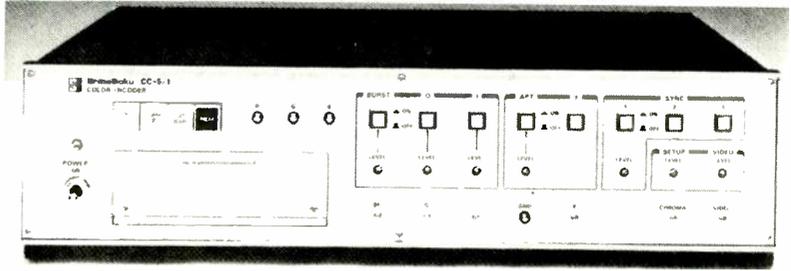
Will show stereo sound effects on CD.

SOUNDMASTERS INTERNATIONAL, INC.

2780

Will be demonstrating its integrated audio editing system, Version 4, with syncro for the IBM personal computer.

THE TRUE MEASURE OF PERFORMANCE



The CC-5 is the new world standard color encoder for use with all character generators, chroma keyers and computer graphics systems.

- 2 RGB inputs plus 3 composite video outputs. Additional outputs include R-Y, B-Y, chroma, Y, I and Q.
- Split field color bars generated internally.
- Aperture correction.
- Phase of output signal may be varied from 0°-360°.
- Remote controllable.
- Available in NTSC; PAL B, M, N; and SECAM Systems.

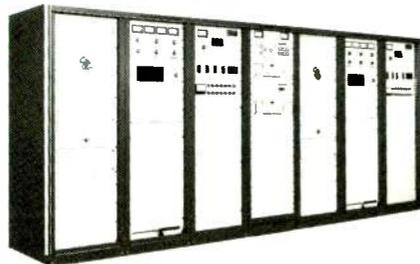
Measure your performance with the best.

ASACA/SHIBASOKU CC-5. From RGB to a clean, accurate, composite color signal.

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Sales, Service: (800) 423-6347 • (213) 827-7144

Circle 203 on Reader Service Card



**A First
For The
Industry**

70,000 watts FM

Continental's new 817R-5 combines two proven 816R-5 35 kW transmitters to offer broadcasters many operating advantages. The 817R-5 uses husky components and is built to give many years of dependable service. The first 817R-5 has been shipped to KABL, San Francisco. For product data, call your local Continental Sales Manager.

- SCR power control
- Automatic RF power output control
- Automatic SWR circuit protection
- SWR output power foldback
- Remote control interface
- AC power failure recycle
- Grounded screen amplifier
- 802A exciter

Transmitters 1 to 50 kW AM and to 70 kW FM, antennas, studio & RF equipment © 1986 Continental Electronics/6322



Continental Electronics



a Division of Varian Associates, Inc. PO Box 270879 Dallas, Texas 75227 Ph. (214) 381-7161 Telex. 73-398 varian

Circle 204 on Reader Service Card

SOUND TECHNOLOGY 3328

Showing new MTS stereo analyzer/monitor to be used with the 3100 programmable audio generator for remote testing of transmission lines. Software packages are available for additional control of instruments with IBM compatible computers. Will also show the 3100A and the Model 1510A with on-board CRT.

SOUNDTRACS 2454

Demonstrating the complete line of mixing consoles

SPECTRUM PLANNING, INC. 2643

Will discuss a service for TV marketing, engineering, and cable analysis in a management tool called TV-Beam. Also, a package for 80/90 applicants, the company's range of services for microwave, satellite, or mobile communications.

STAINLESS 2735

Exhibiting guyed and self-supporting towers for AM, FM, TV, and microwave applications, with guyed towers up to 200 feet for multiple antenna use, coming equipped with elevators. Guy damping systems for high- and low-frequency vibration.

STANDARD COMMUNICATIONS 2709

Will introduce the AGILE Omni Pro, C- and Ku-band radio and audio satellite receiver designed to exceed RS250, and an international TV format version with expanded frequency range for all ITU regions. Other products include the LNBC-41 expanded C-band low range noise amplifier block downconverter for international operation, the LNBC-12 for Ku-band in ITU regions and the CRC-800 series RS232C remote control for access to major operation functions of the receiver series.

STANTON MAGNETICS 3331

Will unveil the Dynaphase 30M/SR disco single cup headphone with removable shoulder rest for handheld operation. The "inertial" microphone will be announced at the show. Complete line of professional cartridges and styli and the 310B amplifier will be shown with a number of record care products.

STANTRON 2911

Exhibiting modular desk consoles, VTR/VCR racks, dubbing, duplicating racks and accessories, as well as video production, post-production, and editing and dubbing consoles.

STAR CASE 2503

Will introduce the new Star F-5 flight racks featuring removable top and front lids. The other four lines of reuseable shipping containers include the Ultra, Super, ATA, and Carry Star ranging in

duty and approval.

STATUS CABINETRY 2909**STEADI-FILM 2648**

Demonstrating film-to-tape transfer gear including a pin-registered gate, precision retrofitted to the Rank Cintel Mark III controlled by a separate microprocessor. Will also show the Manipulator, an XY compound, 360 rotation programmable, four axis controller for art transparency and product manipulation.

STEENBECK 2749

Exhibiting motion picture post-production equipment with video interface.

STOREEL CORP. 3322

Will debut a new line of specialized mobile and static storage units for M-II tape, compact discs, and VHS tape. All formats fit the Room Stretcher ABS system of storage.

STRAIGHT WIRE/AUDIO DESIGN & RECORDING 2518

Showing its CD player/controller with video editor interface as well as the Speed Demon variable speed controller for CD players and stereo expanders. Line of phono preamps, mic preamps, line amps, and DAs will be shown with processors, compressor/expanders, digital faders and the Pro 701 ES digital recording system.

STRAND LIGHTING 3024

Will present the XP light board and the DC90 dimming system. Also featured will be the Janiro 12K HMI, HMI softlights, a range of audio show lights, the Light Palette TV-2 lighting control board, and the Mini Light Palette.

STRATA MARKETING TKTK

Will feature Strata Planner business software, in addition to the Radio Calc and Super Ranker software programs and the Recall diagnostic package.

STUDER REVOX 3048

Unveiling the production version of its A807 two-track recorder with microprocessor control of transport and full editing facilities in various versions. Will also debut the C279 compact mixer with six input channels switchable for balanced mic/line or stereo line and the A820 multichannel recorders with over 40 programmable features, automatic alignment and available in eight-, 16-, or 24-channel versions. The line of A800 and A80 multitrack recorders will be on hand as will the PR99 and the B77 compact recorder line; professional cassette decks and the Philips Studer Revox CD players will be demonstrated. Also on hand will be the 900 series of consoles, TLS 4000 audio/video/film syn-

chronizers in addition to the line of monitor speakers and telephone hybrid systems.

See ad page Cover II

STUDIO TECHNOLOGIES 2514

Introducing a stereo recognition/simulator for MTS use. Also on hand will be mic preamplifiers for studio and location use and the AN-2 stereo simulator.

SUNSPOT 2679

Exhibiting radio traffic, billing and accounting system; broadcast industry bulletin board exclusive to radio industry.

SWINTEK ENTERPRISES 2413

Plan to introduce the Mark 200D/C radio intercom for use with RTS, Clear-Com or Telex units and also unveiling the dual frequency Mark ODC video camera receiver and lavalier transmitter for use in the UHF frequency bank. Will have full switching diversity VHF-UHF wireless mics and video camera RF receivers.

SWITCHCRAFT 2711

Exhibiting its line of BNC straight and right-angle PC-mount receptacles, XLR audio receptacles, and molded cable accessories and jacks, plugs, connectors and switches.

S.W.R. 3350

Introducing high-power FM antennas, panel and pole mount as well as multistation FM antennas and high-power standby UHF antennas. Other products include complete pattern spectrum, high-power waveguide-UHF antennas, coaxial transmission line, and hardware.

SYLVANIA 3327

Will show the FF Series 1000 W PAR 64 lamp with 800-hour life and a ruggedized "Roughneck" construction CY2 2000 W lamp. The line of tungsten-halogen, fluorescent, and metal halide lamps will be shown.

SYMBOLICS GRAPHICS DIVISION 2646

Will unveil a family of graphics workstations, each suited to different budgets and performance requirements. Among these high-performance integrated hardware/software systems is the powerful, newly released Genera 7 operating system, which offers enhanced graphics software for a myriad of applications. A comprehensive set of revised documentation comes with each system. Other products to be introduced at the show include a Lyon Lamb interface to the Sony BVH-2500, and a wide selection of high performance integrated graphics hardware and software for the Symbolics 3600 family of processors. Software products include S-Paint, S-Geometry, S-Render, and S-Dynamics; hardware includes

STICKY DECISION?

Purchasing A Routing Switcher Is A Decision We Want You To Forget

Routing
Switchers

Video
Products

PROPOSAL

3M

Page 1 of 5

Proposal
Prepared
for

STEVE,
THIS IS A DECISION YOU'LL
HAVE TO LIVE WITH FOR A
LONG TIME.
TAKE A CLOSER LOOK AT 3M.

SC.

The proposed 3M Broadcast Control System
will include the following major system components:

Series H Routing Switcher

The Series H Routing Switcher is a modular, expandable, and flexible
routing switcher designed to support a wide range of broadcast applications.

You probably have several important criteria for evaluating the routing switcher system that's going to get your approval: performance, reliability, control flexibility, size, expandability. Each is important now. Several will be important in the future.

The last thing you want to do is make a decision that will come back to haunt you.

At 3M, we think once you make the decision to use our products you should be able to forget it. We design our products to work so well that you can take them for granted. Systems so flexible, they can grow in the ways you have planned, and in the unexpected directions that you can't plan for.

Frankly, we're probably not the first manufacturer of routing switchers to tell you these things. We have some solid competitors with good reputations. While at first glance their products may look similar, a closer look will show you why we have advantages they wish you would forget:

- The Series H Routing Switcher takes less than half the space of the leading monolithic and discrete crosspoint systems
- Actual performance specs are better.
- The 3M control system is more versatile.

Now...are you going to make a decision you have to live with, or one you can forget?

frame buffers, a broadcast resolution frame grabber, and genlock interface.

SYMETRIX 2519

Will introduce the Model 109 auto-null hybrid. Also showing the TI-101 telephone interface, the 104 multiline interface and the 108 broadcast telephone interface. Other products include the 528 voice processor and the series of compressor/limiters.

SYSTEM ASSOCIATES 3392

Used broadcast equipment brokers.

SYSTEMATION 2458

Will introduce new DX-7, a digital automation system with full random access of up to 150 songs on one videocassette. Also new will be a total remote control terminal that presents a full video screen of everything that's cued up and allows all console functions to be handled over the phone on a remote. In addition, the company will debut a new telephone interface with 4 line input and digital audio storage on hard disc of up to 1 hour of randomly accessible audio.

Super Track, a cassette-based system for the total automation of stations on Satellite Music Network, upgrades existing Super Switches. Information Base, another introduction, displays information on screen for any song cued up. Also new are PC Playlist, a complete music selector software package, and Electronic Affidavit, which listens for commercials on air and stamps and mails out affidavits when it hears them.

TABER/AVSC 3333

Showing bulk tape degaussers, audio head replacements and VTR audio head replacment and head refurbishing.

TAMRON INDUSTRIES 120

Exhibiting Fotovix film-to-video processor and a new 14X zoom lens for broadcast ENG/EFP cameras.

TEAC/TASCAM 3416

Introducing the ES 50/501 SMPTE time code based synchronizer with subframe accuracy and the ATR 80 24/32, two-inch multitrack professional recorder. Also new will be the M-600 mixing console with 32 inputs, the M-300 B series of consoles and the 122 MK II broadcast cassette recorder. Two other new products are the CD 501 rack mounted CD player for radio use, and the LV-200A, a laser disk based recordable system for video or audio applications in archival storage, reference, production or distribution.

TEATRONICS 2756

Introducing a new line of dimmers in various wattages and channel-number configurations as well as the Producer II, a computer assisted console with up to 60

channels and 10 dedicated submasters. The standard product line includes computerized lighting control for up to 250 channels and 1000 dimmers with complete custom configuration in number of channels, dimmers, and submasters.

TECHNOV INDUSTRIES 148

Will introduce a videotape antipiracy system and a rack-mounted version of the CSG-110 sync generator. Also will show the J&B-400 editing expander module for the Sony RM-4400 for simple A/B rolls, as its line of video production equipment.

TECHRON 2927

Will present its TEF System 12 acoustic test analyser. The analyser makes anechoic measurements in nonanechoic surroundings, measuring frequency, phase from 0 to 31,000 Hz, phase angle, amplitude to 0.5 dB, distance to less than an inch, and energy over time.

See ad page 54

TEK MEDIA PRODUCTS 3386

A new company premiering at the show its range of film and video storage racks, film splicers and accessory tapes, film viewers, readers, leader for tape, shipping cases, and AV carts and furniture. Information on distribution of RTI metal film reels and cans and Tuscan plastic reels and cans will be available.

TEKNO 2472

Showing video lighting kits, barn doors, galaxy ramps and walls, light in weight and efficient. Lights, stands and boxes.

TEKSKIL INDUSTRIES 2570

Will debut the 909C teleprompter that allows composing, playback, and editing of scripts with both NTSC and Pal output. This unit can be used in the field, weighs 20 pounds, and has a rubber membrane to seal the keyboard. Also on hand will be the 909 TV portable prompter for portable video cameras.

TEKTRONIX 3214

Will unveil a complete new line of automated video measurement equipment for component television gear in NTSC and PAL. Also new will be the 1705 spectrum monitor designed for ENG applications making use of satellites; the 1735 dual standard waveform monitor for NTSC or PAL, and the 1480F30 noise measurement kit using tangential technique.

The existing products on display will include the 1700 series of waveform and vector monitors, the ECO-170A synchronous changeover unit, the 760 stereo audio monitor, and the 751 BTSC aural modulation monitor/decoder. In addition, the WFM-300 component analog waveform monitor and the TSG-300 component test signal generator will be exhibited along with the 650HR-C component/composite picture monitor and the

836TV analyzer. Other products on display will be the full line of spectrum analyzers, synchronizers, generators, and portable oscilloscopes from the CNA division.

See ad page 113

TELEMET/GEOTEL 3396

Showing the broadcast demodulator units for stereo transmission featuring ability to set depth of modulation at the transmitter. Also will exhibit video and pulse DAs, AV routing switchers, envelope delay test sets, sideband analyzers, stereo and mono modulators, video test generators, and video signal enhancement and correction equipment.

TELEMETRICS 2608

Will introduce the remote control trolley assembly for pan/tilt camera heads and custom designed camera control panels. Also showing camera remote control systems with triax or coax cable. Offers standard and variable speed servo controlled capability with and without programmable presets.

TELEPAK SAN DIEGO 2566

Will show the T-scope Tektronix 1740/50 waveform vector pak; the T-20 Sony BVM-20; the T-GAF grip and gaffer pak; the T-mini GAF half size gaffer pak; T-68 Sony V06800; and T GRA-Nagra recorder pak.

TELESCRIPT 3351

Demonstrating its prompting equipment, including the Telecue and Telescriptor transports with high resolution and light monitor prompters. Also have computer prompting programs for the Comomodore and IBM.

TELETECH 2762

Demonstrating consulting services, engineering and applications services for radio and television facility construction and design.

TELEVISION ENGINEERING 3400

Exhibiting its television remote vehicles with fully equipped remote capability.

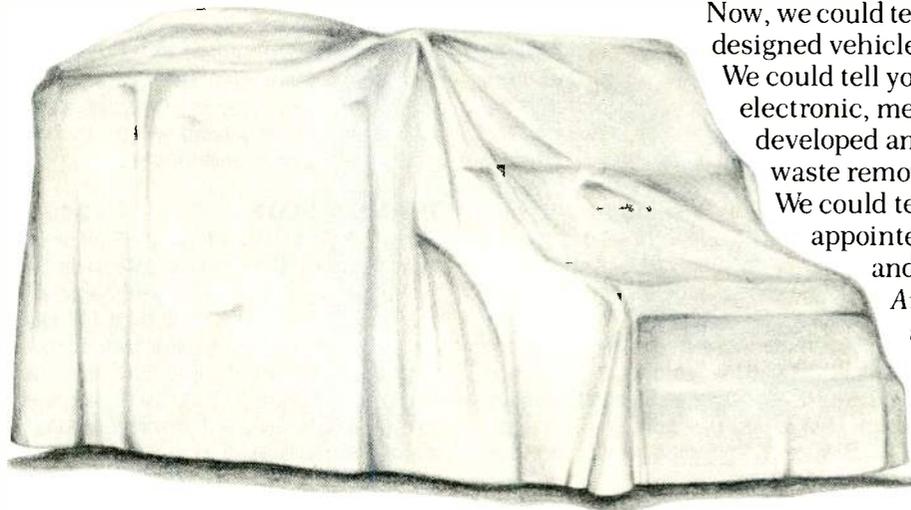
TELEVISION EQUIPMENT ASSOCIATES 3342

Show a new, low-cost Matthey Video Filter for CCIR 601 type digital equipment and new video delay lines for use in HDTV, 50ns block and 50ns programmable in steps of 1ns with 30 MHz bandwidth. New VSA range of video filters that are smaller in size than standard filters. Also showing full line of Matthey filters and delay lines.

TELEVISION TECHNOLOGY 3580

Will introduce UHF-60S 60 kW television transmitter, stereo compatible, with dual klystrons and dual power supplies. Will also show 1 kW UHF and a 100 watt UHF TV transmitters and 25 kW FM translator,

We are proud to present the
*Star Fleet*²¹
a smaller, lighter
Satellite News Gathering
vehicle which meets the
stringent specifications of
Ku band transmission.
See the "Star Fleet²¹"
at NAB booth 3404.



Now, we could tell you more about this totally computer-designed vehicle and its unique "Rigid Rak" system.

We could tell you how our experienced team of electronic, mechanical and satellite engineers have developed an SNG vehicle that *doesn't* resemble a waste removal truck.

We could tell you about its beautifully appointed, meticulously human-engineered and spacious interior.

And we could tell you how Roscor has achieved all this in a vehicle which still has a lighter overall weight and greater payload than other manufacturers' equivalent SNG trucks. But you'll just have to come and see it for yourself at NAB booth 3404.

ROSCOR

VIDEO SYSTEMS ENGINEERING

Roscor Corporation • 1061 Feehanville Drive • Mount Prospect, Illinois 60056 • Phone 312/539-7700

Circle 206 on Reader Service Card

The SSL Stereo Video System

The Practical Standard For MTS Production

Before and beyond the transmitter, Multichannel Television Sound is an art. In the studio and post-production suite, the creative use of stereo can do as much or more than lighting, lensing, colour and video effects to give depth, impact and immediacy to the television picture. It quite literally adds an entirely new dimension to the viewing experience.

In stereo, television is a whole new ball game — or newscast, or series, or advert, or sitcom, or special. Because stereo is both natural and compelling, the programming possibilities are as broad as the imagination and skills of today's sound designers. Technical limitations and the constraints of time are the only obstacles. And that's where SSL can help.

Our SL 6000 E Series Stereo Video System handles complex MTS production with unrivalled ease and efficiency. Designed to simultaneously speed and enhance all aspects of television audio production,

the SL 6000 E Series makes innovative stereo programming practical on a daily basis.

Only SSL has triple stereo mix buses for stereo music, dialogue and effects, plus rapid mix-minus matrixing for Second Audio Program creation. Only SSL provides compressor/limiters, parametric equalizers, expanders and noise gates on every channel — plus balance and image width controls for all stereo sources. And only SSL provides such time-saving operational features as patch-free audio subgrouping and pushbutton signal processor routing. For post-production efficiency, even the multitrack electronics remotes are built right in. And that's just the new line standard equipment!



Options include Total Recall™ — an SSL exclusive, completely independent of the audio path, which allows any operator to recreate the most intricate console setups for any programme with rapid accuracy, week after week. Programmable dynamic stereo equalisation and panning may also be added, along with

300 watt solid state FM transmitter and the Model X FM exciter.

TELEX 3370

Plans to debut a new FM diversity wireless microphone receiver, the FMR-4, four channel unit as well as the LM300 unidirectional lapel mic system with separate power supply. The full line of Audiocom intercom systems, professional headsets, wireless and sound reinforcement microphones will be demonstrated along with the personal PA system and the ENG wireless system and audio tape duplicators.

See ad page 75, 95

TELNOX LTD. 3414

Will introduce a new, economic version of the Telnox L-O which teleconferences two people. The 10-line Telnox L-O computerized telephone for broadcasters will also be presented. In past shows Telnox equipment was presented under the corporate name of Normex.

TENNAPEX SYSTEMS 2812

Introducing a multistation combiner capable of handling up to a megawatt of prime power and both FM and TV broadcast antennas with ideal vertical patterns. Existing products on display include FM and TV broadband panel antennas with circular polarization.

TENTEL

Will have new T2-H5 Tentelometer for M-11 recorders and will show various applications for this measuring device for many video formats as well as spindle height and alignment gauges.

TEXAR

Exhibiting its line of digitally controlled AM and FM audio prism audio processors.

TFT

Unveiling new remote pickup units from five to 25 watts output, operating in the 450 MHz range, ac or dc powered. The units offer built-in companding and both transmitter and receiver are frequency agile. Also new is the Model 852 programmable BTSC cable TV aural modulation monitor. Existing products on display will be the Model 8600 discrete STL links, the 850 stereo modulation monitor, the 8610 remote control system, and the Model 8500 BTSC composite subcarrier system. In addition, composite STL systems, FM stereo monitors and monaural TV frequency and modulation monitors will be on hand.

THEATRE SERVICE & SUPPLY

Showing studio cycs, curtains and track systems, lighting grid and electrical distribution hardware and lighting and dimming equipment.

3326

THERMODYNE INTERNATIONAL

2824

Will feature its designs and configurations in equipment transmit cases.

THOMSON ELECTRON TUBES

3422

Will introduce the TH759 Ku-band 300 watt conduction cooled TWT for satellite ground stations. Also new is the TH546 tetrode for 100 kW FM operation and the TH346 air cooled tetrode for 50 kW FM high gain applications. The full range of satellite ground station klystrons and TWTs for C- and Ku-band will be shown along with power grid triodes.

THOMSON LGT

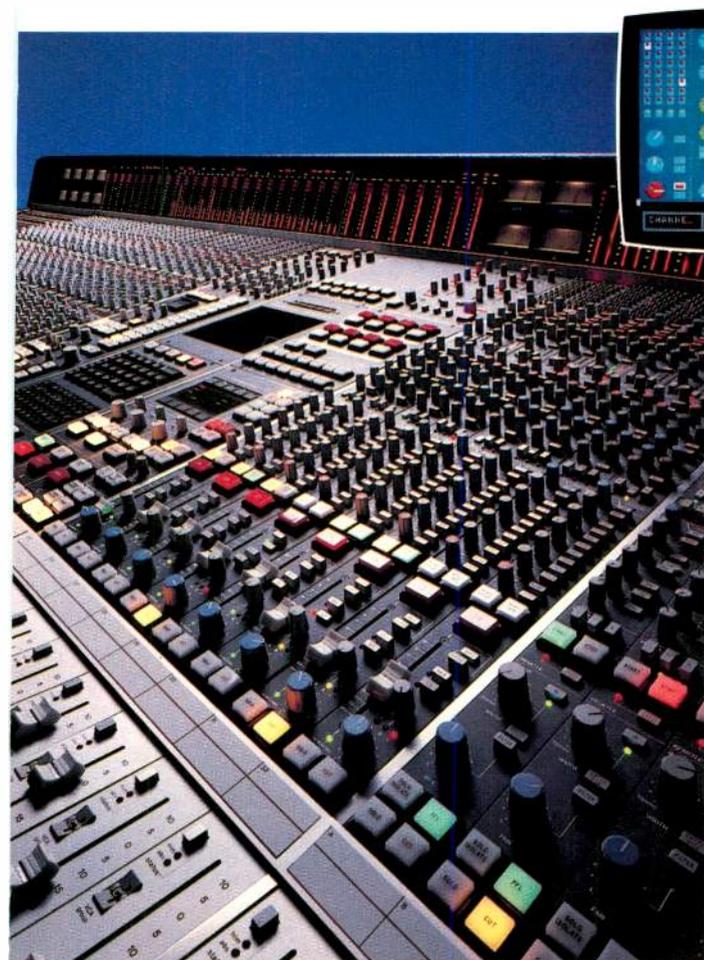
3190

Plans to unveil new 10 kW VHF all solid state TV transmitter, a two kW VHF TV transmitter, and a one kW UHF transmitter. Also new will be a 100 watt FM exciter, a 10 watt TV transmitter with incorporated TVRO system, and a 10 kW FM transmitter. Existing products on display include 10 kW UHF TV transmitter, the 200 watt UHF translator, two and five kW FM transmitters, and 30 kW TV transmitters.

THOMSON VIDEO

3190

Will debut the TTV5650 component digital switcher, the TTV 1640 CCD camera, formerly only shown in prototype. From the standard product line, the company will show the full line of studio and EFP



multi-repeatable Events Control, Automatic Dialogue Replacement, and centralised command of up to five synchronised audio and video machines. All of this is thoroughly integrated with the SSL Studio Computer — the world's number one choice for mixing automation.

Best of all, the SSL Stereo Video System is not a hasty revamp of an old mono design. Nor is it an experimental project in search of a guinea pig. It is a practical, reliable international standard for advanced television audio production — proven in well over half a million hours of network and independent studio and mobile operation — in Great Britain, Japan, Germany, Scandinavia, Australia, Canada and all across the United States.

Take advantage of our experience. Call or write today for a free 40 page colour brochure describing the operation and applications of the SL 6000 E Series Stereo Video System. If your station or facility is contemplating an upgrade to full MTS production capabilities, we'll be happy to arrange a complete demonstration. And be sure to ask about our training programmes.

Solid State Logic

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 200 West 57th Street • New York, New York 10019 • (212) 315-1111
 6255 Sunset Boulevard • Los Angeles, California 90028 • (213) 463-4444

cameras, the CCD digital slide scanner, and its digital to analog converter. For the Vidifont/Viditext graphics product line see the listing for BTS (3140).

TIFFEN 2736

Demonstrating wide range of lenses and filters for film and video applications in a variety of sizes as well as the special effects viewing kit.

TIMELINE 2684

Will exhibit its line of audio and video transports and the Link SAL stand-alone, chase lock synchronizer that obviates the use of a controller. There will also be previews of a new film interface for use with film islands, telecines, and control of mag recorders, and a new controller system, Link VSI, a video systems interface that allows an edit controller to control an audio machine as it would a video machine for layback and audio edits.

TOA ELECTRONICS 2498

Will have on hand its shielded AV monitors, F Series speakers, powered mixers, and condenser mics.

TORPEY CONTROLS 2906

Announcing the new VCLK-20 video time and temperature display with logo option. Showing full range of master clock systems, slave digital time display and slave analog clock as well as the PC-18 com-

bination slave analog clock/digital temperature display. Digital timer/stopwatch, central stopwatch and thermometer system will be available.

See ad page 167

TOSHIBA 3302

Will exhibit its new three-chip CCD broadcast camera as well as its family of PK-50 tube cameras. Also on display will be a portable Ku-band satellite news gathering system and high-definition television equipment.

See ad page 152

TOWNSEND BROADCAST SYSTEMS 3305

Newly combined company of Townsend Associates and Broadcast Systems will be introducing new products in the transmission and automation/distribution areas. In transmission, a new 30 kW low band VHF television transmitter will be introduced with new control features. New amplifiers include two UHF klystron units of 60 and 10 kW and a new driver controller, the DC-60G for the 60 kW transmitters will be shown along with the new TE-3 VHF/UHF exciter.

As for the automated side, the DC-80 automatic video cart machine will be introduced along with television consoles and cabinetry, automatic video signal processing and audio jack panels and interface panels. Turnkey services will

be explained.

See ad page 146

TRANSFORMATIONS 2631

Demonstrating an artist-oriented computer animation system, the EFX, based on the Microvax computer system with frame buffer and monitor included. Aimed at post production houses.

TRANSMISSION STRUCTURES 2623

Showing new broadcast tower designed for the Docket 80-90 user. Also demonstrating turnkey installations including tower, transmitter, antenna, line, STL, and engineering packages.

TRIMM 2649

Will show its telephone, audio, and video jacks, jack panels, patch cords, plugs, terminal blocks, and fuse panels.

TROMPETER ELECTRONICS 3346

Will feature its line of audio and video patching equipment, connectors, and coaxial cable.

TSM-TOTAL SPECTRUM MANUFACTURING 3534

Will unveil the HS-110P studio camera automation system for delivery at NAB. The unit will operate with the TSM

multicontroller and provide complete automation of up to four cameras. Also new will be the Sportsfocuser, automatic focus system allowing grandstand cameras to precisely track focus at any focal length or depth of field. In addition, the full range of camera motion control systems, pan/tilt systems, font compose/graphics stands, and camera accessories will be on display.

See ad page 129

TVI 2555

Will show its lines of beaming and lighting control equipment, tracks and rigging, and all kinds of television and studio production equipment, including new Peppers.

TWR LIGHTING 236

Will show its beacon, controller, and obstruction lights.

ULTIMATE CORP. 3552

Will be showing its line of video compositing devices, including the Ultimate-5 with 32K of random access memory and remote control; the original Ultimate-4, winner of an Emmy for Outstanding Engineering Achievement; and the medium-priced Ultimate-200 and Newsmatte-2, both with self-adjusting automated controls.

UNICOL PRODUCTS 2474

Will feature the complete line of trolleys, carts, and stands for A/V and video equipment; fully adjustable video projector stands; video copy stands; wall and ceiling monitor mounts.

UNION CONNECTOR CO., INC. 2923

Will introduce a rainproof, portable electrical distribution center with 48kW output for HMIs and incandescent lights. The company's line of electrical wiring and distribution devices will also be on display.

UNITED MEDIA 3036

Will introduce new equipment at the show and feature the Commander II 3 VTR controller, Mini-Comm 4 VTR controller, and the Comm-ette A/B roll controller.

See ad page 52

UNITED ROPEWORKS (U.S.A.), INC. 2420

Will display its electrically transparent, maintenance-free tower guys and specially designed systems for high-power applications.

See ad page 132

UREI 2727

The JBL/UREI on-air broadcast console will be on display, along with JBL/UREI power amplifiers and signal processing devices and UREI Time-Align studio monitors.

U.S. TAPE AND LABEL 2630

Will show its promotional bumper stickers and window labels.

UTAH SCIENTIFIC, INC. 3128

New for this year's NAB is an updated Master Control Switcher with expanded audio facilities and SAP channel operation. Established product lines of routing switchers, machine control systems, and station automation systems will also be shown.

See ad page 48

UTILITY TOWER CO. 3485

Will display sections of its AM, FM, and TV towers.

VALENTINO, INC. 3465

Will introduce a new digitally recorded, digitally mastered sound effects library on ten color-coded CDs. A production music library on CD and LP libraries will be on display as well.

VALLEY INT'L. 2747

New for NAB is the AUTOGATE, a sophisticated noise gate/expander with proprietary Auto Slope circuitry that automatically alters the gating/expansion slope as dictated by program content. Two new modules for any Valley 800 series rack mount enclosure will also be introduced. The 817 COMANDER module features a compressor section with an interactive expander to eliminate residual noise and an AUTO mode that places the compressor attack and release controls in a program dependent mode. Meanwhile, the single-channel 816 LEVELLER module provides precise audio level control to prevent tape saturation and speaker overloads. Also on display will be the model 400 Mic Processor, a multifunction, single-channel device. The model 440 Limiter/Compressor/Dynamic Sibilance Processor; and the Model 610 Dual Compressor/Expander with two independent channels and coupling capability for stereo programming.

VALMONT INDUSTRIES 224

First time exhibitor at the NAB showing antenna support systems. Poles and lattice towers.

VARIAN ASSOCIATES 3206

New from the Microwave Equipment Division will be a modular replaceable unit TWT power supply and a Ku-band medium power amplifier. A GEN II Ku-band klystron high power amplifier will also be shown. The Microwave Tube Division will introduce several new traveling wave tubes and exhibit its high efficiency and wide band klystrons, an electromagnet, and a variable visual coupler. Varian EIMAC will show its lines of low frequency triodes, medium frequency tetrodes and pentodes, high frequency, and switching products. Meanwhile, the

EIMAC Division will introduce new VHF tetrodes and retrofit kits while exhibiting its lines of power grid tubes, cavities, klystrode and hardware, and the 3CX80047 cavity amplifier.

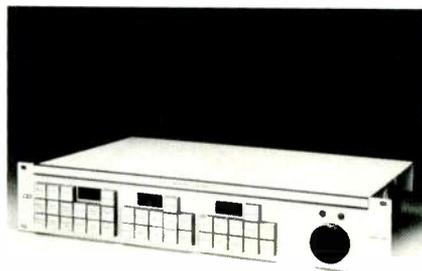
VARI-LITE 2424

VEAM DIV. OF LITTON 123

Will unveil a line of fiberoptic connectors, splices, and accessories. Also featured will be the CIR Series of quick-disconnect, electrical multipin connectors with time-saving quarter-turn locking mechanisms, available in 12 different sizes and more than 200 arrangements.

VECTOR TECHNOLOGY 2477

Will introduce toroidal current transformers for current sampling, plus Phasemate, an instrument for measuring phase shift in a network or a circuit. A directional antenna phasing system will be on the floor



SMCS-1 Control Panel for Utah Scientific's new SMC-1 serial machine control system

plus samples for their complete line of RF products, coils, contactors, switchers, and related accessories.

VERTEX COMMUNICATIONS CORP. 2447

Will show a 1.8-meter flyaway antenna that can be easily transported in five suitcases and assembled by a single person in approximately 20 minutes.

VERTIGO SYSTEMS 225

Intends to display the V2000 animation system introduced last August, for tv and teleproduction market.

VIDEO AIDS OF COLORADO 2910

Showing the PG-2PC pattern generator, Model 100 sync generator, VDA-2PC video DA, ADA-2PC audio DA, PDA-2PC pulse DA, a video line isolator, and a video squelch. There will also be an announcement regarding the new look of VAC's product line.

VIDEO ASSOCIATES LABS 3330

Will introduce a new PAL standard addition to the Mark series of equipment for

STU STU STUDIO.

When you hear the fidelity and accuracy of the AKG K 240DF Studio Monitor Headphones, you'll know why it's become a standard for recording engineers and professional musicians around the world. This latest version of our well known K 240 (now K 240M) has been created to meet a recently proposed IRT (Institute for Broadcast Technology) international standard. The K 240DF establishes a uniform sound quality free from environmental variables. As opposed to sound from loudspeaker monitors, that is colored by variations in control room design, the K 240DF is unchanging and reliable.

Each K 240DF is tested in a diffused sound field to arrive at a headphone design with a flat frequency response ($\pm 2\text{dB}$) and matched sensitivity. This professional headphone is close to perfection—without coloration or distortion. The self-adjusting headband supports the circumaural ear cups, each containing hand selected, large dynamic moving-coil transducers and acoustic filters. Minimum weight is well distributed for maximum comfort over long time wear.

The AKG K 240DF Studio Monitor Headphone, a total design concept, is just right for your Stu Stu Studio.



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Studio-Monitor

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K 240DF
2 x 600 OHMS
MADE IN AUSTRIA

computer-to-video overlay of text or graphics.

VIDEO DESIGN PRO 2634

VIDEO INTERNATIONAL DEVELOPMENT 208

Will unveil a new line of digital standards converters, models DTC 2502, 2602, 3502, 3602. The DTC 4500 four field standards converter will also be introduced, along with a multi-standard TBC, the TBC 3000, and the DEC 4000 digital comb decoder. See ad page 50

VIDEOLAB 138

Plans to introduce the TCR6 time code retrofit for Sony VO-6800s with record/playback address track time code displayed on the LCD readout. Will also show its TCR5 retrofit for Sony Type 5 VTRs with record/playback and edit using address track time code, plus the FSR fast shuttle retrofit for up to 20x shuttling on Sony 5800s and 5850s.

VIDEOMEDIA 3558

Will be exhibiting the Mickey 1 and 2 low-cost editors for cuts and A/B rolls, respectively, the EAGLE and Magnum Series of editing systems, the Q-StarIIA sequencer, and the VMC-2000 multichannel playback Lautomeration system. There will also be new product announcements at the booth.

VIDEO SERVICES UNLIMITED 2436

Exhibiting its Jimmy-Jib camera boom, mini camera crane.

VIDEOTEK 3316

Will introduce several new products at this year's NAB, including the TVM-620 combination waveform monitor/vectorscope, the VPH-360 SCH phase indicator, the DM-140S stereo TV demodulator, a manually controlled and an automatic black burst generator, and the AVM-19s 19-inch color monitor. Also on display will be several lines of professional color, display, high-resolution, and waveform monitors; demodulators, vectorscopes, routing switchers, distribution amplifiers, and audio program monitors. See ad page 10, 11

VIDEOTELECOM 2683

VIKING CASES 2915

Will show shipping and carrying cases for all types of broadcast equipment.

VINTEN 3579

Unveiling the new 3286 Midiped, demountable light studio and field pedestal and new Vision 20 system, including the new ENG/EFP head and EFP two-stage tripod. Featuring the Vision line of heads and tripods as well as pedestals and heads from the MK VII fluid camera head.

Microswift 200 digital remote camera control unit will also be featured including MK III EFP and MK I studio heads, MK I on servo pedestal. See ad page 178

VITAL INDUSTRIES 3191

Will introduce the model 3000 video production switcher. The 115 Master Control series will also be on hand, along with the SAM station automation master. See ad page 172

WARD-BECK 3060

Will feature its R1000, R1400, and R2200 stereo radio consoles along with its ST Series of stereo TV consoles, which are available in 24, 36, and 48 input channel configurations. Also on display will be MicroCom intercom systems, the D8212 distribution amplifier assembly, and the M405D rack mount extended range VU/PPM meter. See ad page Cover IV

WAVEFRONT TECHNOLOGIES 433

Will introduce new Version 2.5 of its 3D dynamic imaging software with such enhancements as ray tracing and shadows, improved texture mapping, plotting capability with hidden line removal, accelerated quick shading, and support for Pixar and AT&T Targa image formats. Also on display will be the Wavefront Model build module, which provides the necessary functions needed to create, store, edit, and display 3D descriptions; the PreView animation module; and Image software package that includes the Image program, a variety of support programs, and a large library of graphic and database routines.

WEGENER COMMUNICATIONS, INC. 2491

Will display stereo STL equipment for TV broadcasters, satellite audio and data transmission systems, SCPC and subcarrier radio network downlink systems, and digital program and transmission systems.

WHEATSTONE CORP. 2400

Will introduce the MTX-1080 Reinforcement console with programmable muting, 4-band sweepable equalization, and 8 effects send controls. Also new this year will be the SP-6 radio production console in 4- or 8-track configurations with stereo and mono input modules, 4 auxiliary send buses, and four to 56 input channels. Featured products include the AP500 on-air and production console, the SP-5 stereo production console, and the A-500 on-air console. All models available in customized sizes and configurations.

WHEELIT 2783

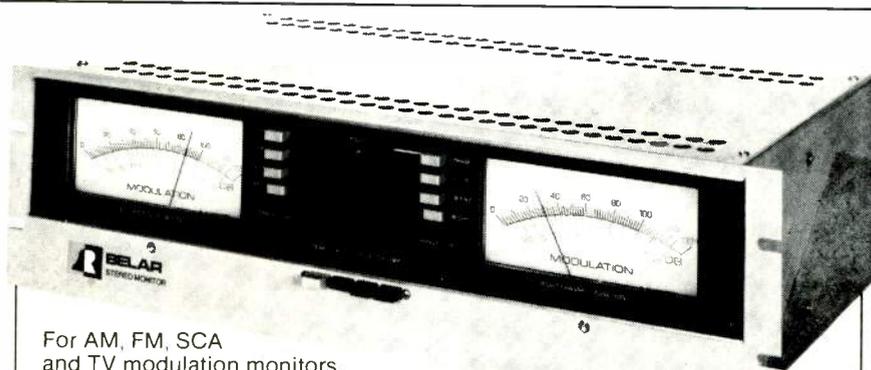
Will show EFP-17 carts and Cam-10 cart for mounting monitor, camera, and 3/4-inch VCR. New products include the Model 6000 for supporting 25-inch monitor and VCR for wheeling from room to room.

For A Good Time,* See Bob Torpey at Booth 2906, NAB '87

*Time: Digital Clocks, Analog Clocks, Digital Timers, Video Time and Temperature Displays and Accessories.

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Circle 208 on Reader Service Card

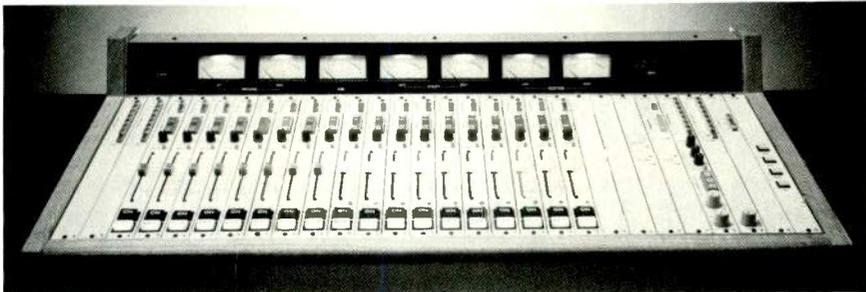


For AM, FM, SCA and TV modulation monitors.

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Call (215) 687-5550 or write for more information on Belar AM, FM, Stereo, SCA and TV monitors.





Wheatstone's A-500 on-air console features separate music and speech busses that allow multi-module processing before mixing for a program output.

WHIRLWIND 2643

Will show interface cables for audio and video.

WILL-BURT 2587

Featuring a new 42-foot extended telescoping mast with new features and 27-foot standard duty mast with new additions, including wiper bumper and button-head collar bolts and under fed air. New pneumatic system for standard duty masts.

H. WILSON 2757

Will present its lines of studio consoles, cabinets, and cart/tape storage devices.

WINSTED CORP. 3424

New for NAB will be the BVE-900 editing console, a storage system for half-inch

Betacart tapes, a double-width modular dubbing rack, and a mini editing cart. Featured products include modular editing consoles for half-inch, 3/4-inch, and one-inch tape formats; tape and film storage systems, post production consoles, tape trucks, duplication racks, and vertical equipment cabinets.

See ad page 97

WIREWORKS CORP. 2401

Will present a cable reel, designated CR-107, as well as design kit literature featuring the company's range of mix-and-match multipin components.

See ad page 44

WOLD COMMUNICATIONS 2606

Offering a wide range of satellite telecommunications services to the TV industry,

including fixed and mobile uplinking/downlinking, mobile microwave, transponder time leasing, and network coordination and management.

WOLF COACH, INC. 3541

Will reintroduce the "Box," or B-Series ENG/EPF vehicle. The Box is secured on a one-ton chassis and is designed to be easily reused on a second generation chassis. The B-Series vehicle on display will feature ample rack space, separate storage area, a 52-foot mast, on-board power generator, and single-mast 2 GHz "Repeater" capability. Wolf Coach will also be introducing its latest designs and concepts in lighterweight vehicle planning for satellite news gathering.

WORLD TOWER CO., INC. 2814

Will feature its line of tower sections for AM and FM antenna towers.

WSI CORP. 2642

Will introduce the SUPERseer, a new single weather graphic that allows weathercasters to show viewers a realistic model of what the cloud cover will look like nationwide within a 48-hour period. Also on display will be the ASTROgraphics PC-based weather graphics delivery system.

YAMASHITA ENGINEERING 2766

PORTA-BRACE QUICK DRAW



► This professional case is a convenient way to carry and protect your camera on the ground, in your car and in the air. With its hard shell construction and aluminum viewfinder guard, this padded nylon case means lightweight security for your camera. Call or write for information.



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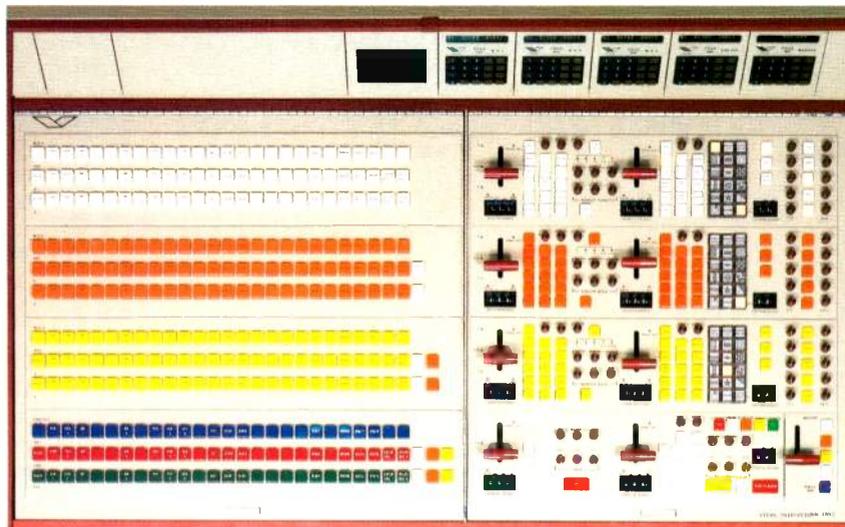
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That's Vital's **NEW** 3000 & 3000 + Series Production Switchers.

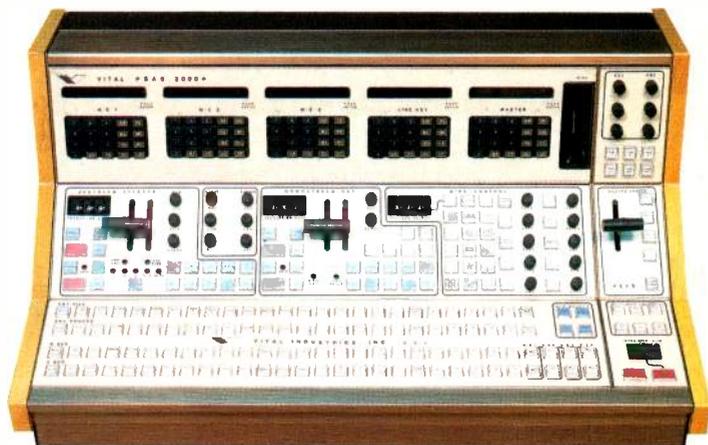
Need more keying power? Try 4 Video Keys, or a Chroma Key plus 4 Video Keys, in each M/E Plus, all M/E's have separate key inputs with discrete filling signals, permitting 16 self-filled keys in our largest 3000 model. That's our new 3000 Series Production Switcher.

Want simple operation? How about Dual Handlebars, two Auto Transition Units, Simul-Key System for multiple key entries and exits, plus automatic key set-ups in memory for instant access. That's Vital's new 3000 Series Production Switcher.

And state-of-art technology? Compare our 3000 Series with any other production switcher in the market. If you can find a better one for less, buy it! This is VITAL's top of the line production switcher—one so fully-loaded that the only option is the stereo audio-follow-video package.

And don't forget SAM...the most advanced station automation system in the world!

For edit suites, remote or ENG vans... 3000 + the most powerful little switcher in the world!



Here's a fantastic switcher with 2, 3 or even 4 Double-Level Mix/Effects systems and occupies only 27" x 18" of console space. This simple ergonomically-designed operations panel can control multiple M/E's at the touch of a button. Yet each M/E of the 3000+ is the same switching powerhouse as the Vital 3000 Series: 2 levels of switching each; an Upstream section that mixes, wipes, title keys and chroma keys, and much more.

So if you've been dreaming of the ultimate switching package—the Vital 3000 Plus Video Production Switching system is here, now, ready to make your wildest production dreams come true.



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Rehabilitation Tax Credit

Following the letter of the law under the new tax guidelines will help broadcasters with this unique tax credit.

By Mark Battersby

Ignoring the finer points of the new tax rules, especially with respect to rehab tax credits, could lead to trouble in the complex task of figuring taxes for a broadcast operation. Although many broadcasters are all too aware of how they want the various items they are involved with to be treated for tax purposes, many make the mistake of not following the tax rules exactly. The wisdom of close adherence to the guidelines is demonstrated by a recent Tax Court decision involving one station owner's failure to properly elect the straight-line method of depreciation in order to depreciate a building's rehabilitation expenses. As a result of that simple failure, the station's 20 percent rehabilitation tax credit was disallowed.

Now, at the beginning of the current tax changes, it is a good idea to illustrate the importance of following the Internal Revenue Service's rules to the letter. This has, of course, both positive and negative aspects to it regarding rehab tax credits. The new laws extend the life of the rehabilitation tax credit, while at the same time lowering the rate.

Case in point

In a case that recently came before the United States Tax Court, the taxpayer, in one year, incurred a substantial expense in rehabilitating a commercial broadcasting building that it owned. On the original income tax return for the year in question, the broadcasting operation reported the rents they had received and claimed a tax deduction for

the depreciation of the building. They did not, however, claim any depreciation or tax credit in connection with the rehabilitation expenses.

The next move by the station was to file, within a short period of time, an amended tax return on which they claimed a depreciation deduction and a 20 percent rehabilitation tax credit based on those rehab expenses. The depreciation deduction was computed under the general Accelerated Cost Recovery System (ACRS) for five-year property.

The ever-vigilant IRS made two modifications to the broadcasting operation's amended return. First, it determined that the rehabilitation expenses pertained to 15-year property, not five-year property and, therefore, it lengthened the period over which the al-

Broadcast Management

Rehab Tax Credit

lowable depreciation could be claimed. Second, it completely disallowed the rehab tax credit based on its finding that the station had not fully complied with rules governing that credit.

The IRS, then, had decided that the broadcasting operation's election to claim the rehabilitation tax credit had failed due solely to the choice of depreciating the rehab expenses under the ACRS method. Naturally, the station contested the disallowance and appealed the matter to the Tax Court.

In sustaining the IRS's disallowance of the broadcaster's claimed tax credit, the court noted that the credit may be claimed only if certain election procedures have been complied with. Among those election procedures is the requirement that rehabilitation expenditures be depreciated under the straight-line method if the tax credit is to be claimed.

The court, in this case, observed that when the station first claimed a depreciation for rehabilitation expenses on its amended return, they computed the deduction under the accelerated method that is permitted under the general ACRS computations. In addition, the court could not find any indication on either the station's original or amended tax return that they had chosen to depreciate the expenses under the straight-line method. While station owners argued before the court that they should have been allowed to choose the straight-line method of depreciation on the amended tax return, the court refused to consider this argument.

In short, the Tax Court decided that the station had failed to meet even the most minimal requirements for making a valid election to claim the rehabilitation tax credit and the credit, therefore, had been correctly disallowed by the IRS.

Tax election procedures

The Court's decision illustrates the importance of following tax election procedures to the letter if tax benefits are to be fully employed. Although the Tax Court

expressed its exasperation with the complexities of our basic tax law, the Internal Revenue Code, and suggested that the broadcasting operation was, in all likelihood, probably unaware of the election procedures, the court's decision remained. Even in considering such influential factors, the court maintained they in no way could undo the station's violations in not complying with the required election procedures and therefore must lose the claimed rehab tax credit.

“Since the new restrictions don't apply for rehab projects except those completed after December 31, 1986, the possibilities for mistakes are almost doubled.”

The importance of following the prescribed election procedures will not be diminished when the Tax Reform Act of 1986 is fully in place. This is due to the retention of the same tax elections, including the rehabilitation tax credit for certain buildings.

Specifically, the Tax Reform Act of 1986 provides for, in lieu of the present credits, a 10 percent credit for the rehabilitation of buildings placed in service before 1936. To qualify for this credit, however, under the new rules for the rehabilitation of nonhistoric structures, the building must remain in place at least 75 percent of the existing external walls (including at least 50 percent as external wall as well as at least 75 percent of the building's internal structural framework. Pertaining to historical structures, credit will be reduced to 20 percent and a full basis or book value adjustment will be required.

Since the new restrictions and rates don't apply for rehab projects except those completed

after December 31, 1986, the possibilities for mistakes are almost doubled. Fortunately, the basic rules remain unchanged.

For instance, until the end of 1986, 30-year buildings qualify for a 15-percent rehabilitation tax credit, 40-year buildings qualify for a 20 percent credit and certified historic structures produce a 25 percent tax credit. After 1986, the credit, as mentioned, would be 10 percent for nonhistoric structures and 20 percent for historic structures. Keep in mind that the rules for qualifying for this unique credit apply under both the old and the new rules.

Quite simply, to qualify, rehab expenditures must exceed \$5000 or the adjusted basis or book value of the property (the value of the land may not be taken into account) at the beginning of the 24-month rehabilitation period. Generally, no tax credit is available for a certified historic structure or a building in a registered historic district unless the approval of the rehabilitation is obtained from the Secretary of the Interior.

This rule applies to buildings located in a registered historic district, unless the broadcasting operation obtains certification that the building is not of historic significance. Broadcasters who rehabilitate certified historic structures without prior approval of the Secretary of the Interior will be limited to straight-line depreciation.

The tenant of a building can be eligible for this credit for rehabilitation performed by him, provided that the property for which the rehab expenditures are made is depreciable by that tenant and the other requirements for taking this credit are satisfied. Presumably, a tenant entitled to claim a deduction for leasehold improvements would meet this test. Unfortunately, an expenditure by a tenant will not qualify for the rehabilitation tax credit, new or old, where on the date that the rehab is complete, the remaining term of the lease (determined without renewal periods) is less than 19 years.

As mentioned earlier, rehabili-

“A close reading of the new tax law makes it quite clear that broadcasting operations considering expansion or relocation should give serious thought to older or historic buildings.”

tation expenditures qualify for the credit only if at least 75 percent of the external walls are retained in place. An alternative to the 75 percent of external wall test is allowed to permit irregularly shaped buildings to qualify for the credit. Under the alternative test, the investment credit for otherwise qualified rehabilitation expenditures is extended to rehabilitation of buildings where:

1. At least 50 percent of the building's external walls are retained in place as external walls;
2. At least 75 percent of the building's external walls are retained in place, either as external walls or internal walls;
3. At least 75 percent of the building's internal structural framework is retained in place.

Comparable rules also apply, under the alternative test, in determining what percentage of internal walls (and external walls converted to internal walls) is retained following rehabilitation. All load-bearing internal walls and any other internal structural supports present in a building before the beginning of rehabilitation, including the columns, girders, beams, trusses, spandrels, and all other components that are essential to the stability of the building or facility, are treated as part of the building's structural framework.

Beginning in 1987, the building must retain in place at least 75 percent of the existing external walls (including at least 50 percent as external walls) as well as at least 75 percent of the building's internal structural framework.

A close reading of the new tax law makes it quite clear that broadcasting operations consider-

ing the expansion or relocation of their operations, or new busi-

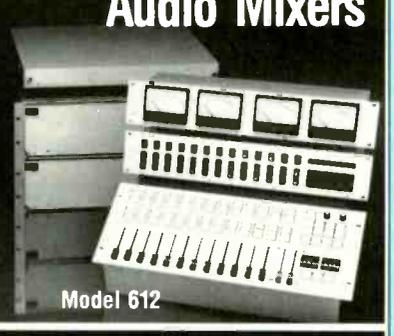
nesses deciding where to locate should give serious thought to older or historic buildings. The Tax Reform Act preserves the credit for expenses incurred in rehabilitating older or historic buildings, though in a modified form. The outcome of our sample case should encourage the following of the rules to the letter, ensuring the legality of the tax credit election. **BM/E**

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A Deregulatory Stew

By Harry Cole, FCC Counsel

This month, we will make a mad dash through a variety of current developments on the FCC front. While none of these items would necessarily warrant a whole column's worth of attention, they are still matters of which you should be aware. As always, if you have any questions about these items—particularly with respect to their impact on your own situation—you should consult with your communications counsel.

Minority preference inquiry initiated

On the comparative proceeding front, in December the Commission opened up an inquiry into the question of whether or not minority and/or female applicants should be given any preference because of their race, ethnic origin or gender.

This is a hot item because it touches on a controversial policy that invariably triggers emotional debate between its supporters and its critics. The current Commission appears to be leaning away from the awarding of minority preferences in *any* context, largely because the FCC seems unwilling

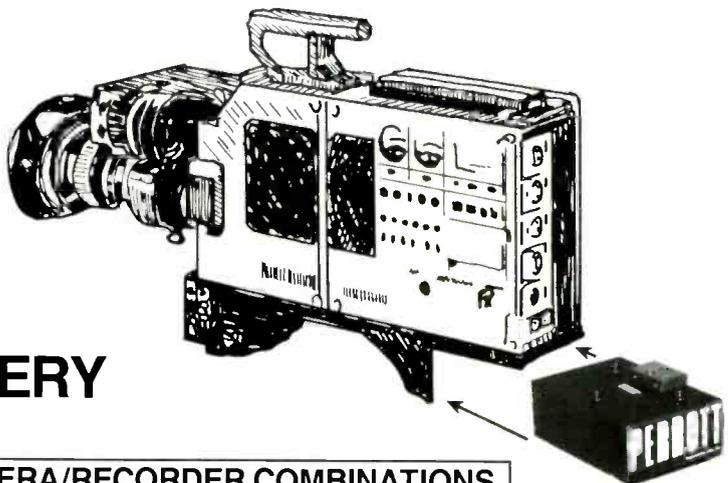
to indulge in the assumption that lies at the heart of all minority preference policies, *i.e.*, that the programming a licensee will present is determined by the licensee's race or gender.

The trouble that the Commission is likely to encounter is on Capitol Hill, where Congress will be controlled by democrats in the upcoming term. In general, the democrats appear to have supported the minority preference policies. As a result, the FCC can expect some rough sledding if it ultimately decides to eliminate those policies. In fact, some members of Congress have already begun to express their concern about the possibility that the policies may be abandoned.

Duopoly rule waived

In December, the Commission took the unusual step of waiving its duopoly rules to permit an applicant to acquire a television station whose coverage area overlaps another television station already licensed to that applicant. Historically, such common ownership of stations in the same service with overlapping signals has been strictly

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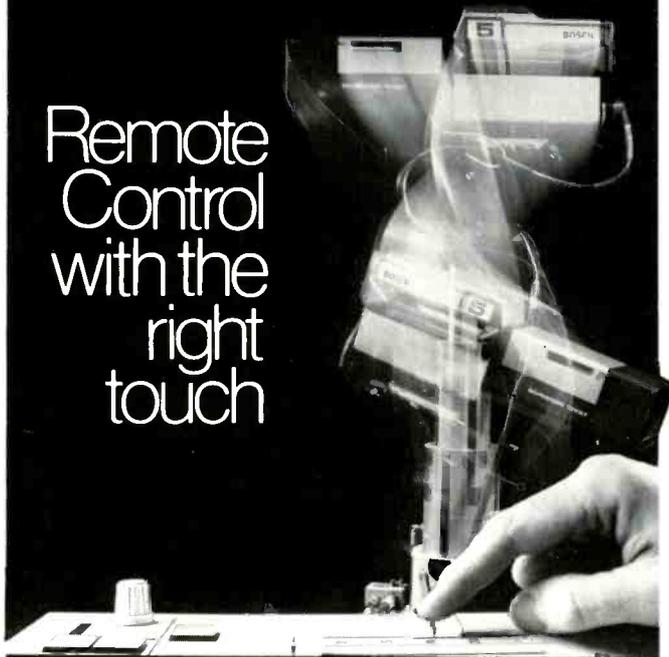
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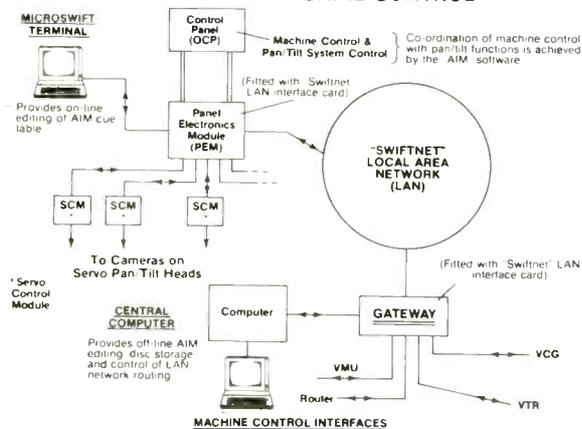


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FCC Rules & Regulations

prohibited. Here, however, the FCC noted that many other signals are available in the overlap area, and that no "undue concentration of economic power" was likely to result.

This decision could be viewed as an enlightened step by the Commission, a step designed to encourage broadcasters to venture into new ownership situations without undue interference by the regulators in Washington. On the other hand, it could also be viewed as wholly inconsistent with the Commission's oft-proclaimed goal of a broadcast industry regulated solely by the marketplace.

The Commission, as it turns out, does not appear to be particularly troubled by such conceptual niceties. This suggests that now is a good time to present the FCC with proposals, which, while inconsistent with the rules and possibly inconsistent with the Commission's policies, would nevertheless represent some desirable advantage for the existing broadcast industry. There is usually no harm in asking, and in light of today's regulatory (or nonregulatory) climate, one could easily be surprised at the lengths the Commission may be willing to go to help broadcasters further their own interests.

Freeze placed on AM daytime-only application

The Commission has taken the first step in the formal phase-out of AM daytime-only stations by refusing to consider any new applications for such stations. As of December 12, 1986, the freeze was on.

This action comes in the wake of the Mass Media Bureau's extensive efforts to identify and solve the problems that have confronted the AM radio industry over the last decade or more. As you probably know, overall AM listener levels have dropped dramatically during that period as the availability of FM stations and receivers has expanded and popular acceptance of FM has soared. Not surprisingly, AM revenues have tended to dry up as its listener base has shrunk, and many AM stations have encountered predictable financial difficulties. Those stations usually most directly affected by this chain of events have been daytime-only stations, which have an understandably difficult time competing with full-time stations. As the FCC sees it, daytimers already present an inefficient use of spectrum space, and no purpose is served by inviting applications for even more daytimers while the FCC is still trying to figure out how to help the existing ones.

Although the current freeze is technically "temporary," it is for all practical purposes as permanent as they come. The Commission itself has indicated that the current "temporary" freeze is merely a holding action pending the adoption of a formal proceeding looking to ban permanently any further daytime-only applications.

Main studio rule violations still result in fines

We have previously called your attention in this column to the Commission's current interest in abandoning the main studio and program origination rules. Please understand that, even if the FCC is thinking seriously about doing away with those rules, that does *not* mean that you can assume that they have already been done away with. At the end of November of last year, after the Commission had initiated its rulemaking proceeding looking toward elimination of the main studio and program origination rules, the Mass Media issued a notice of apparent liability for \$10,000 for violation of those very rules. The moral of the story is, of course, that a rule is still in effect as long as it is on the books, no matter what the prospects for its elimination may be.

In memoriam—Abe Voron

Finally, a personal note. Last November, Abe Voron died. Abe was a solid journalist, a concerned broadcaster, and a quiet leader. He assisted in the formation of the National Association of FM Broadcasters, an organization that came together before FM was the dominant radio medium. As the FM industry matured, the NAFMB expanded to become the National Radio Broadcasters Association, composed of FM and AM licensees. The NRBA was dedicated to one of Abe's fervent beliefs—that radio broadcasters have their own separate and distinct interests, which deserve to be addressed in their own context.

Abe was a central figure in the NRBA. He understood the important difference between radio and television, and he was patient and tireless in his efforts to articulate those differences for the benefit of all broadcasters. Although NRBA has since merged into the National Association of Broadcasters, that merger was accomplished in a way intended to highlight the fact that, notwithstanding the number of common concerns they share, radio and television also have separate interests of equal importance, interests that can and should be addressed separately.

Perhaps most importantly for the broadcast industry as a whole, Abe was in the vanguard of the deregulation movement, a movement that has contributed mightily to the economic well-being of the entire industry. As an officer and director of the NRBA, Abe consistently championed the position that deregulation was the only proper course for the radio industry.

While Abe was well known in certain broadcasting circles, he often seemed to shun the lime-light that could easily have been his. Instead, he worked behind the scenes, organizing, lobbying, listening, constantly looking for ways to improve the broadcasting industry. His success in those efforts is our good fortune. His death is our great loss. We shall miss him.

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